DOCUMENT RESUME

ED 184 481 HE 012 530

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TITLE The University Graduate and the Marketplace.
INSTITUTION Council of Ontario Universities, Toronto.
PUB DATE Jan 80
NOTE 65p.: Charts on five pages may not reproduce well.
AVAILABLE FROM Council of Ontario Universities, 130 St. George Street, Suite 8039, Toronto, Ontario M5S 2T4, Canada

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS College Attendance: *College Graduates; *Economic Climate; *Employment Projections; Employment Statistics; Enrollment Rate; Foreign Countries; Higher Education; *Labor Market; Postsecondary Education; Salaries; Trend Analysis; *Unemployment; Vocational Followup; *Youth Employment
IDENTIFIERS Canada; *Ontario

ABSTRACT

The major economic and demographic analyses of youth unemployment are reviewed, and data on the employment experiences of recent Canadian graduates are analyzed. Projections of future demand for highly qualified manpower are also considered. A particular focus is the impact of actual and perceived employment problems on university enrollments and programs. Information from a variety of sources shows that while recent graduates have had more difficulty in the job market than their counterparts in the fifties and sixties, certain popular assumptions about extensive unemployment among the university-educated cannot be substantiated. However, student perception of employment problems is having an effect on the universities, resulting in a declining participation rate, shifts in enrollment to more vocationally oriented programs, and questioning of the value of a liberal arts education. Data are presented on: labor force growth and unemployment rates for selected industrialized countries and for Ontario, Canada: Canadian unemployment rate by selected age group, 1955-77: elementary-secondary enrollment, school-leavers with bachelor's degrees and new teachers hired, Canada, 1962-86: the annual number of potential labor force entrants from the Ontario educational system by level of schooling, 1966-2000: postsecondary gross enrollment rate, Canada, 1962-86: average spring unemployment rate, by educational level, Canada, 1974-77: median salaries by field of study for college and bachelor's degree graduates employed full-time. (SW)

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THE UNIVERSITY GRADUATE AND THE MARKETPLACE

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January, 1980

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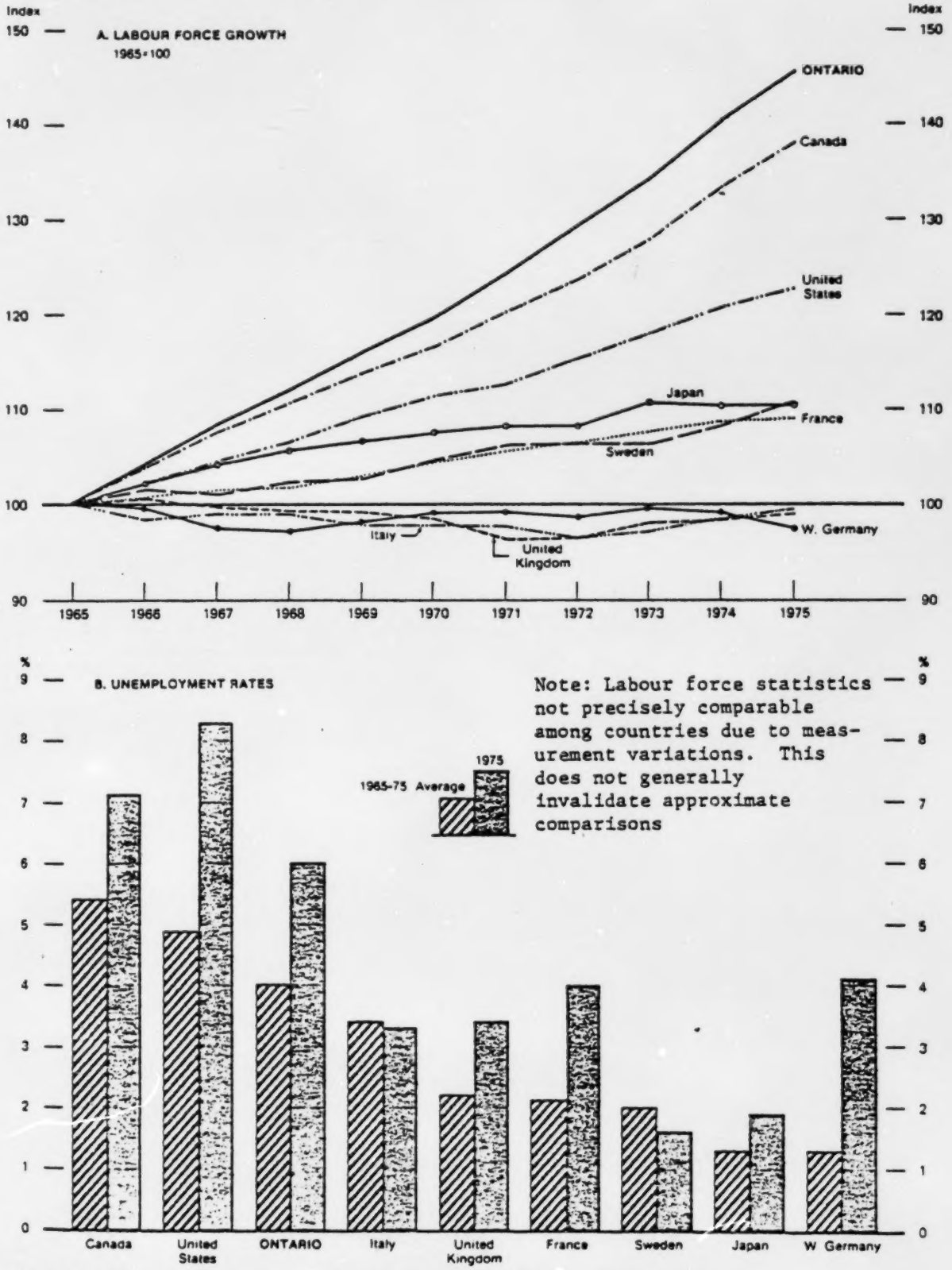
During the 1970's, employment problems of university graduates have been extensively publicized and investigated. This report reviews the major economic and demographic analyses of youth unemployment, data on the employment experiences of recent graduates, and projections of future demand for highly qualified manpower. It is particularly concerned with the impact of actual and perceived employment problems on university enrolments and programmes. Information from a variety of sources shows that while recent graduates have had more difficulty in the job market than their counterparts in the fifties and sixties, certain popular assumptions about extensive unemployment among the university educated cannot be substantiated. However, student perception of employment problems is having an effect on the universities, resulting in a declining participation rate, shifts in enrolment to more vocationally oriented programmes, and questioning of the value of a liberal arts education.

Demographic Factors

Unemployment (or more accurately underemployment) of university graduates is part of a more general problem of youth unemployment prevalent throughout most of the world in the last decade. In North America and to a lesser extent in other industrialized countries, youth unemployment is a consequence of the "baby boom" that followed World War II. In the mid-sixties, the baby-boom generation began to enter the labour force, and regardless of level of education, the number of new workers has tended to exceed the number of

FIGURE 1

Labour Force Growth and Unemployment Rates for Selected Industrialized Countries and Ontario



Source: *Labour Force Statistics, Organisation for Economic Co-operation and Development and Statistics Canada*

Source: Future Trends in Enrolment and Manpower Supply in Ontario, p. 123

available jobs. Between 1965 and 1975, the growth rate of the Canadian labour force outpaced all other countries, increasing by 3.3% annually, compared with 2.5% in Australia, 2.2% in the United States, and 1% or less in France, the United Kingdom, West Germany and Switzerland.[1] Although high immigration to North America and Australia also contributed, much of the labour force growth was due to the increase of workers in the 15-24 age range. Between 1960 and 1975, Canada experienced a 74% growth in this age group, compared with 63% in the United States, 3% in Italy, and 4% in Japan.[2] These statistics are represented graphically in Figure 1.[3] Although the young, inexperienced worker is also most vulnerable to cyclical unemployment caused by recession, it has been estimated that about two-thirds of youth unemployment in Ontario in recent years is due to "structural" factors, including the very rapid rate of labour force growth.[4]

Given the unprecedented growth in its young labour force, Canada has not experienced excessive rates of youth unemployment during the seventies, relative to some other industrialized countries, as Figure 2 shows. In comparison to Canadian adult workers, however, the Canadian youth has certainly had great difficulty in finding and keeping satisfactory employment (Figure 3).

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[1] A Medium Term Strategy for Employment and Manpower Policies (Paris: OECD, 1978), p. 19.

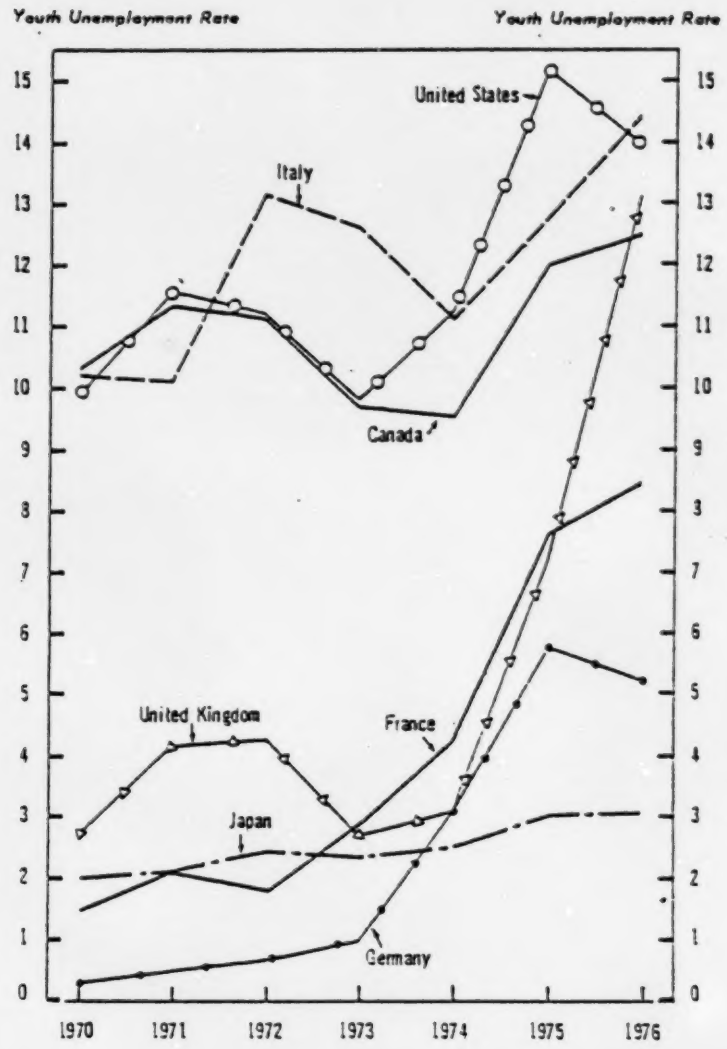
[2] Youth Unemployment: A Report of the High Level Conference (Paris: OECD, 1978), V.I., p. 33.

[3] From Z. Zsigmond, et al, Future Trends in Enrolment and Manpower Supply in Ontario (Ottawa: Statistics Canada, 1976), p. 123.

[4] Youth Employment and the Ontario Economy, (Toronto: Ontario Ministry of Treasury, Economics and Intergovernmental Affairs, 1978), Summary, p. 1.

FIGURE 2

B. Trends in youth unemployment in 7 Member countries, 1970-1976

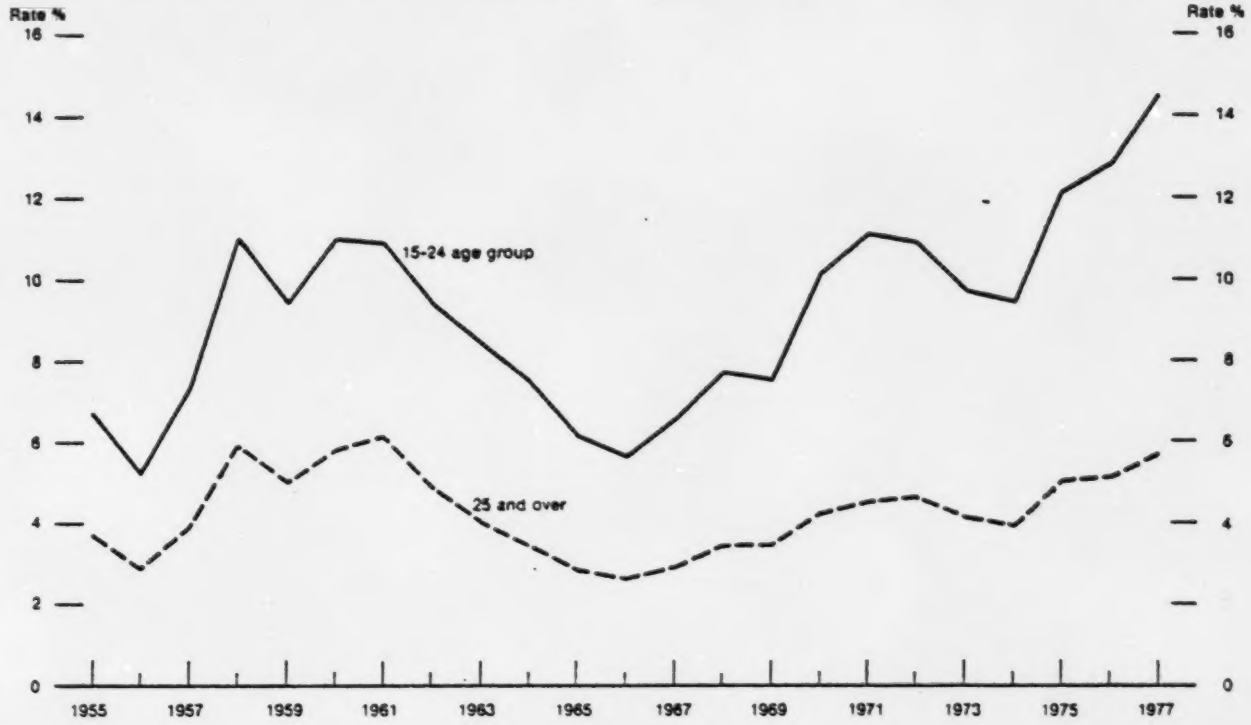


Source : OECD. Labour Force Statistics. OECD. Statistics Division and National Sources.

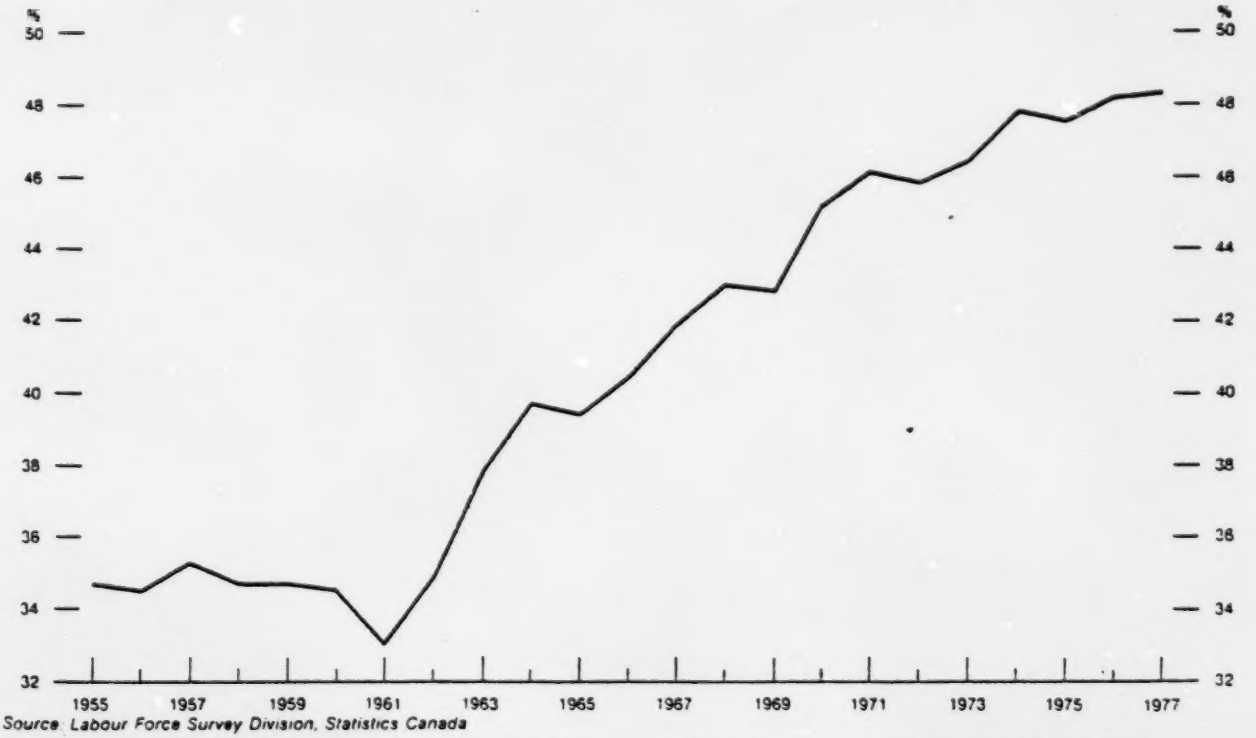
Source: Youth Unemployment, V.I, p. 27

FIGURE 3

Canadian unemployment rate by selected age group, 1955-77



Unemployed in 15-24 age group as a percent of all unemployed, Canada, 1955-77

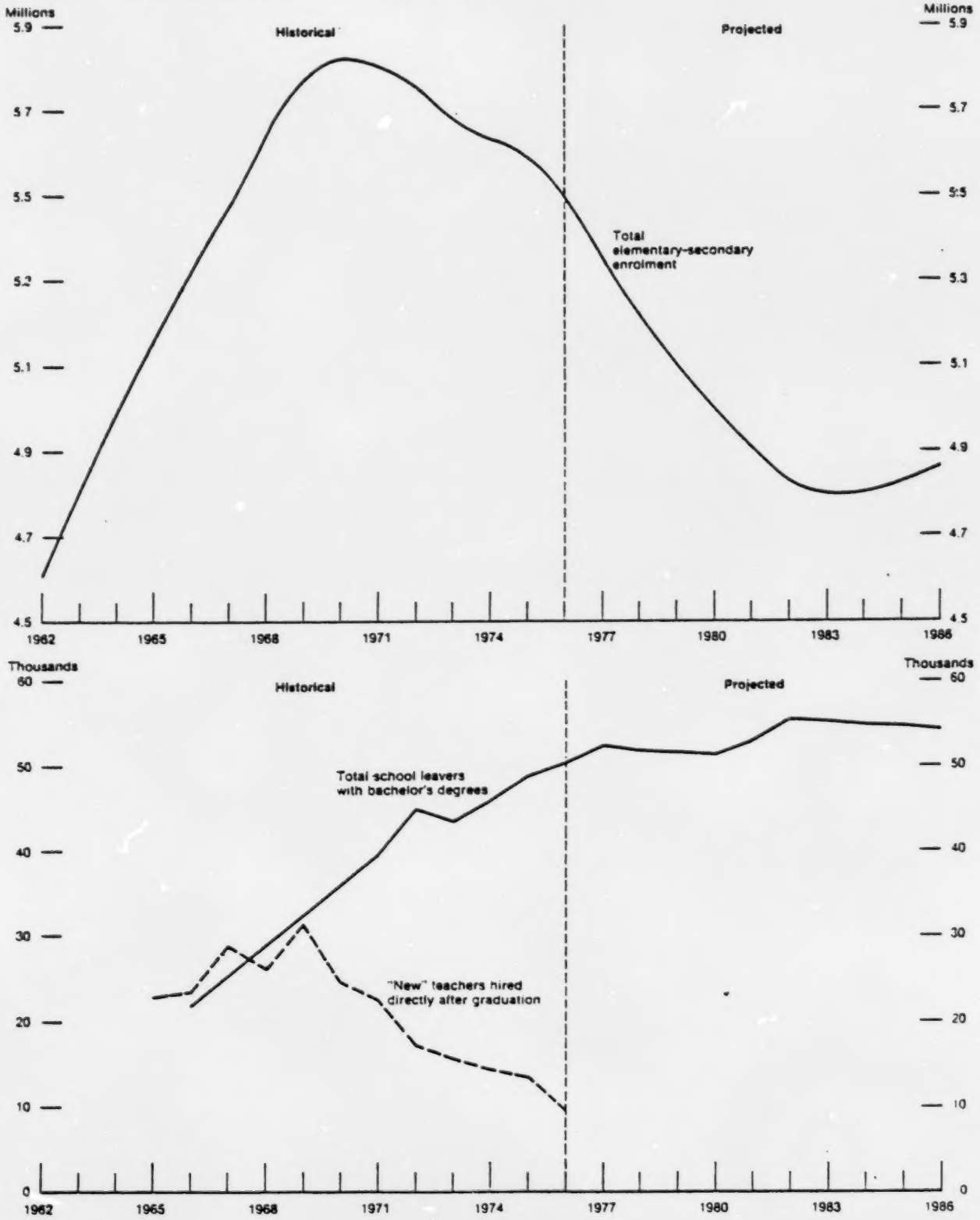


Source: Labour Force Survey Division, Statistics Canada

Source: Z. Zsigmond, Out of School-Into the Labour Force, (Ottawa: Statistics Canada, 1978), p. 33

FIGURE 4

Elementary-secondary enrolment, school leavers with bachelor's degrees and "new" teachers hired, Canada, 1962-86



Source: Out of School-Into the Labour Force, p. 44

Although the annual influx of school leavers actually peaked in 1977,[5] the problem may remain into the eighties, since young people who fail to find jobs will be disadvantaged through lack of skills and experience. Because of a decreased birthrate after 1960, the total number of 15-24 year-olds will decline in the early eighties. This will tend to solve the general problem of youth unemployment in the longer term, but it creates special problems for university graduates, since a significant proportion of them have traditionally been employed as teachers. Statistics Canada's 1973 Highly Qualified Manpower Survey revealed that 36% of degree holders under the age of 29 were employed in teaching. With such a large portion of the university-educated work force dependent on the education sector, the substantial decline in hiring of new teachers shown in Figure 4 is clearly a contributing factor in the employment problems of more recent bachelors graduates. Elementary enrolment will begin to increase again in the mid-1980's, as the children of the baby-boom generation enter school, but demand for teachers will not reach the level of the fifties and sixties.

The poor employment situation for teachers at all levels is the most prominent example of an imbalance between qualified graduates and traditional degree-related jobs. Between 1984 and 1987, the number of labour force entrants with post-secondary education may exceed those with secondary school graduation or less (Figure 5). If the early 1970's patterns of educational supply and demand continue into the next decade, over 50% of new members of the labour force in 1984 will have some education beyond high school, an

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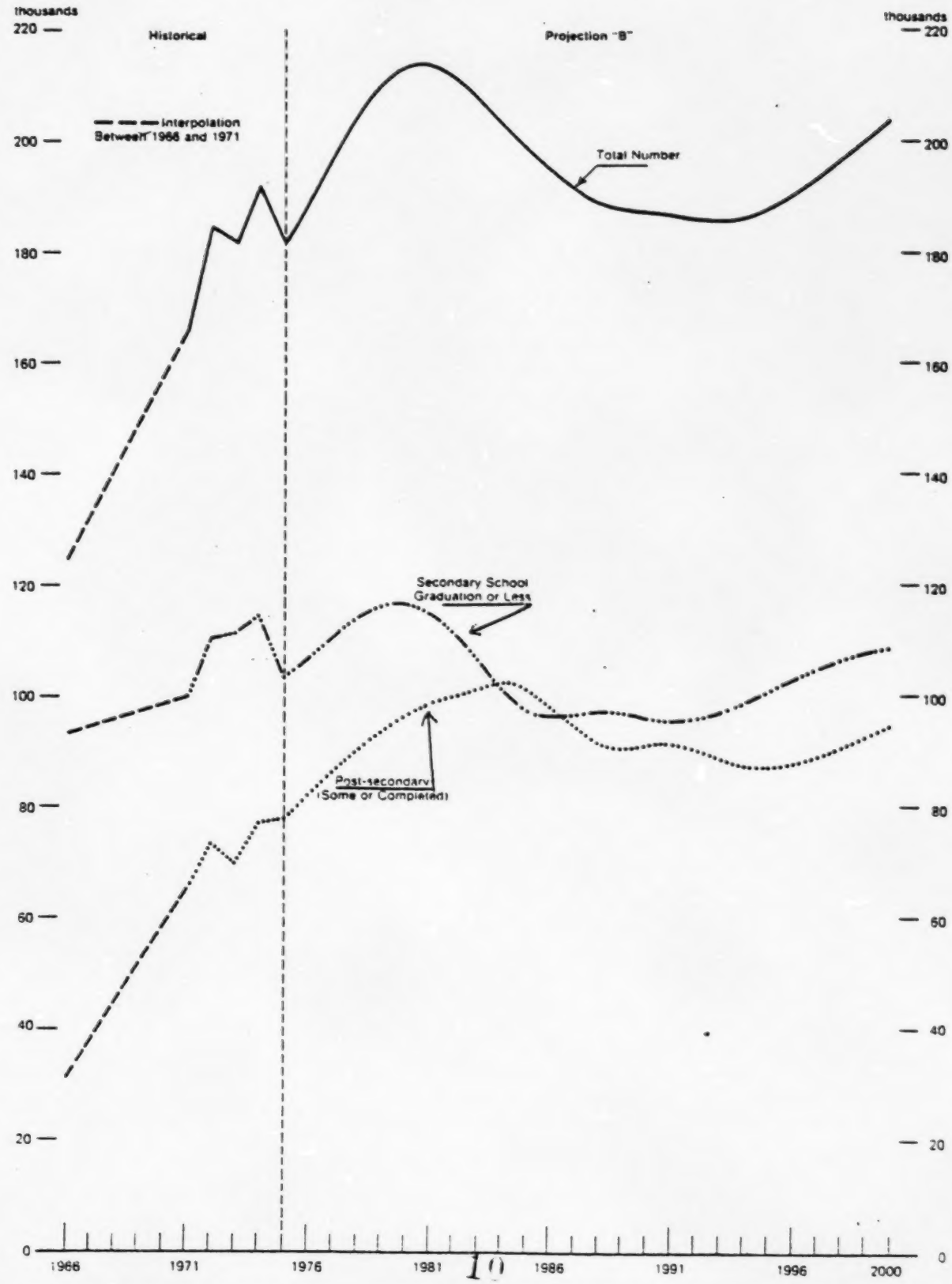
[5] Z. Zigmund, et al. Out of School - Into the Labour Force: A Summary of Findings (Ottawa: Statistics Canada, 1978) pp.24-28.

FIGURE 5

The Annual Number of Potential Labour Force Entrants from the Ontario Educational System by Level of Schooling, 1966-2000



Source: Future Trends in Enrolment and Manpower Supply in Ontario, p. 22

increase from 43% in 1975. While the potential supply of graduates from Ontario post-secondary institutions is expected to number approximately 500,000 over the decade to 1986, the demand for highly-qualified manpower in traditional occupations such as teaching may produce, by one estimate, only 155,000 net new openings.[6] However, these projections are very mechanistic, and do not take into account adjustments in both post-secondary enrolments and occupational choice, as students adapt to the realities of the labour market.

Changing University Participation Rates

The decline in enrolments now facing elementary and secondary schools will begin to affect the universities after 1982, when the total number of 18-24 year-olds will become smaller. Figure 6 shows historical and projected enrolment rates for this age group. In part because of good job prospects in teaching and the public sector, the post-secondary enrolment rate increased from 11.1% in 1962 to 19.7% in 1976. However, since the early 1970's a combination of economic and social factors has altered the mix of post-secondary students. The male participation rate peaked in 1971 at 22.3%, but the female rate has continued to increase, from 14.6% in 1971 to 17.7% in 1976.[7] Freeman reports similar changes in the composition of the university population in the United States, where the participation rate of white males

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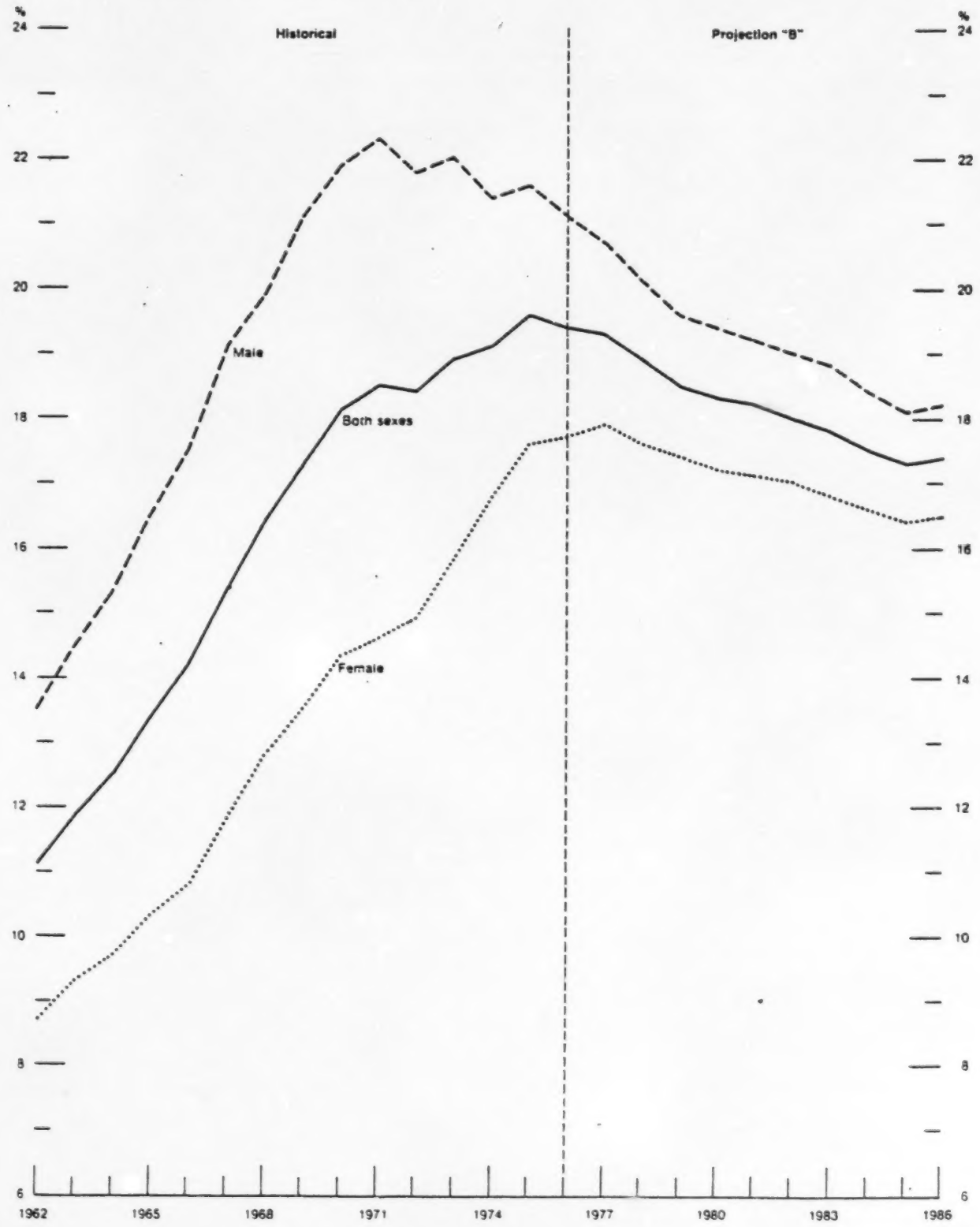
[6] Youth Employment and the Ontario Economy, pp.12-14

[7] Out of School - Into the Labour Force, p.12

FIGURE 6

Post-secondary gross enrolment rate (total full-time enrolment related to 18-24 age group population) Canada, 1962-86



Source: Out of School-Into the Labour Force, p. 13

has declined in recent years.[8] The projections shown in Figure 6 are based on an assumed decline in the enrolment rate because of non-demographic factors, including a labour market surplus in some disciplines, diminished demand for teachers, and continued decline in government expenditure for post-secondary education. The universities will be faced with the difficult task of adapting to both an inevitable decline in the prime student age group, and demands for more vocationally-oriented programmes by students concerned with short-term job prospects.

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[8]Richard B. Freeman, The Over-Educated American (New York: Academic Press, 1976).

The Employment Record of Recent University Graduates

Because of employment problems currently facing some graduates, it is often assumed that academic education is wasteful and irrelevant. A recent newspaper article declares that "the majority of Ontario's students aren't equipped to contribute to the economic growth of society. The education system has failed them by placing too much emphasis in the schools on attaining a BA".[9]

The authors of the above statement do go on to acknowledge that university education continues to have some economic value, and that the major problem of unemployment is among high school dropouts. However, they manage to convey the impression of academic education as outmoded, elitist, of little value to society and even less to the individual. It is certainly true that many university graduates are finding the search for a first job a longer and more difficult process than an earlier generation did. Nevertheless, the available data show that the unemployment rate of university graduates is significantly lower than that for workers with less education, and their rate of participation in the work force is higher.

In January, 1979, the worst month for unemployment in Canada that year, the seasonally unadjusted unemployment rate for all workers throughout Canada was 9.1%, with a labour force participation rate of 61.5%. Workers with a university degree had an unemployment rate of 3.3%, and a participation rate of 82%. In each age and sex category, university graduates have an

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[9]David Vienneau and Trish Crawford, "Education on 'cutting edge' of revolution", Toronto Star, 1 September, 1979.

advantage, even over those with community college diplomas. In the 15-24 age group, 6.6% of university graduates were unemployed in January 1979, compared with 9.1% of post-secondary certificate or diploma holders, and 28.7% of high school graduates.[10] Figure 7 shows a similar pattern of unemployment rates by educational level for the period 1974-77.

More detailed information on employment of university graduates is available from a number of surveys conducted by individual institutions, and by Statistics Canada in cooperation with provincial ministries.[11] Published data from surveys of 1974 and 1975 Ontario college and university graduates, and the national survey of 1976 graduates show significant differences in short-term employment prospects according to discipline and degree level. The two Ontario surveys reported the employment experiences of graduates at specified reference periods, from 4 to 18 months after graduation. The total employment rate for all graduates was somewhat lower for the 1975 cohort than for the one of 1974, with the most significant difference appearing in the first reference period, the September after graduation. Community college graduates enjoyed an

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[10] Data from Statistics Canada monthly report, The Labour Force (January 1979), pp. 20-21.

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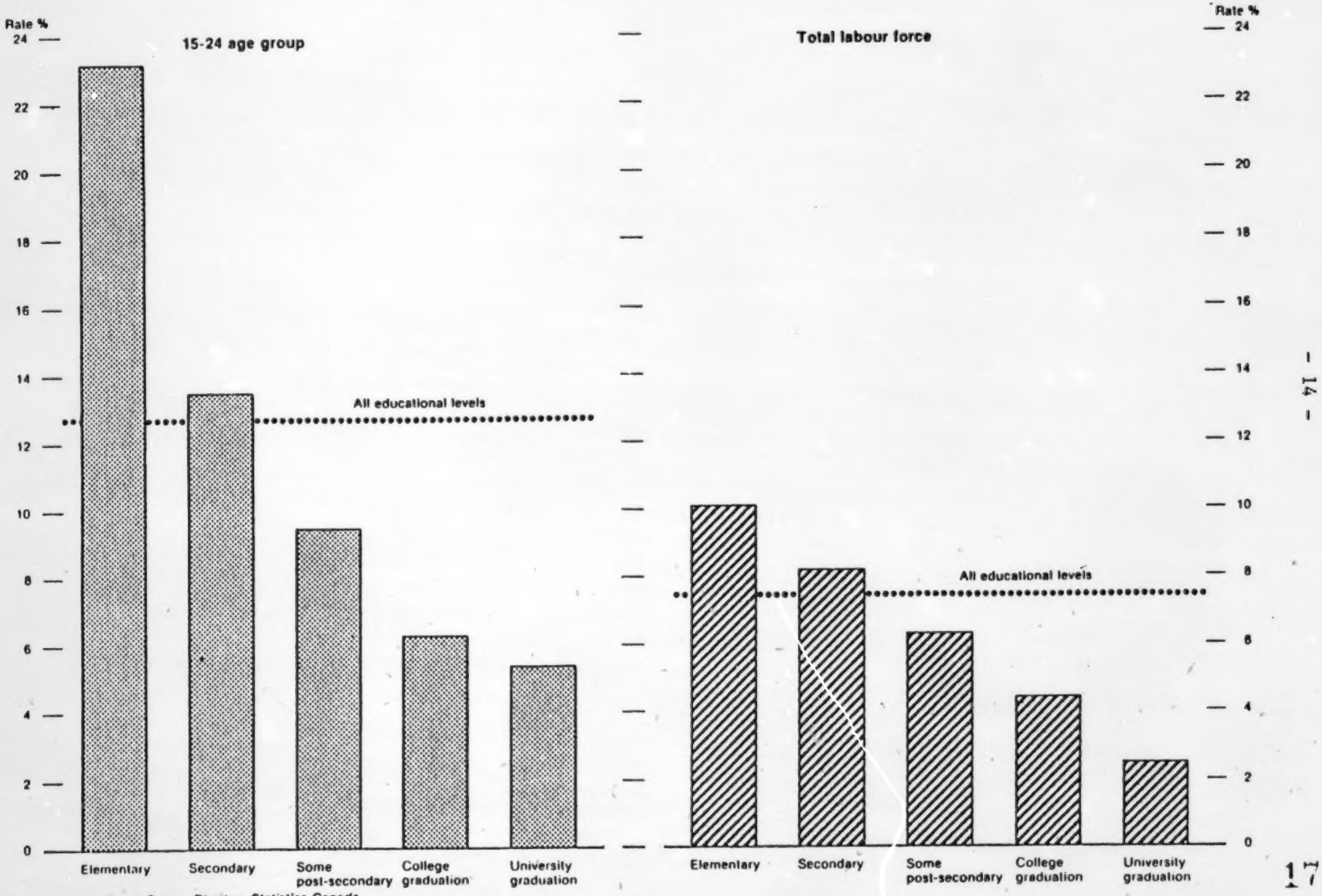
[11] In Ontario, the Universities of Guelph, Toronto, Western Ontario and Wilfrid Laurier conduct annual surveys through their placement offices. In addition, plans are being made for a survey of all 1979 Ontario university graduates. Published reports include: Highlights of the Survey of 1974 Ontario College and University Graduates (Statistics Canada and Ontario Ministry of Colleges and Universities, December 1976); Survey of 1975 Ontario College and University Graduates: Highlights Report (Ontario MCU, July 1978); and Employment of 1976 University and College Graduates (Statistics Canada, 1979).

FIGURE 7

Average spring unemployment rate, by educational level, Canada, 1974-77



Source: Labour Force Survey Division, Statistics Canada

Source: Out of School-Into the Labour Force, p. 35

FIGURE 8

EMPLOYMENT RATES OF COLLEGE AND BACHELOR'S GRADUATES FOUR AND EIGHTEEN MONTH'S AFTER GRADUATION

	1974 Graduates		1975 Graduates	
	Sep. 74	Dec.75	Sep. 75	Dec. 76
College Graduates				
General Arts & Science	--	--	93.9	91.4
Arts (Creative, Vis. Arts. Comm.)	80.5	92.5	85.2	88.4
Community & Social Services	81.0	92.9	83.1	90.6
Technology	96.9	96.2	93.0	95.4
Practical Arts	95.6	94.3	91.7	90.5
Secretarial, etc.	92.1	96.2	88.8	95.2
Business Administration	92.9	92.7	85.7	93.5
Allied Health	92.1	94.8	75.5	94.1
Education	90.2	94.1	88.2	88.4
Household Science	--	--	95.7	88.9
Total	91.0	94.4	84.5	92.7
Bachelor's Graduates				
General Arts & Science	79.8	92.7	79.2	94.6
Fine Arts, Language & Literature	78.4	93.9	81.5	88.8
Social & Behavioural Sciences	80.6	91.5	74.3	91.4
Math, Natural Sciences	87.2	91.2	85.7	90.2
Engineering & Architecture	92.6	97.0	95.1	96.2
Secretarial Science	--	--	100.0	100.0
Business Admin. & Management	95.7	97.7	90.2	98.7
Economics	91.9	95.5	86.6	91.1
Medicine & Allied Health Sciences	93.9	99.8	94.5	100.0
Education	92.8	98.1	95.8	96.2
Household Science	89.3	94.2	84.8	82.0
Total	88.1	94.8	88.5	93.5

(--) Number of observations too small to yield valid results.

Source: Highlight Reports: Surveys of 1974 and 1975 Ontario College and University Graduates.

advantage in the first year, but at the 18 month reference point, the percentage of bachelor's degree graduates reporting full-time employment was slightly higher. Because many community college programmes are specifically vocational, it is not surprising that graduates quickly find jobs. The process of entry into full-time employment takes longer for university graduates from non-professional programmes. As Figure 8 shows, 18 months after graduation the employment rates of university graduates in a number of disciplines are higher than those from community college technology and secretarial programmes. Even the much-maligned general arts and science graduates have a 94.6% rate of employment, better than the average for all community college graduates. Data on the median salaries of college and bachelor's degree graduates also suggest a longer-term financial advantage for the university cohort. Figure 9 shows that eighteen months after graduation, the university group with the lowest median salary (fine arts, language and literature) had surpassed the median salary of all but the two highest-paid college groups (technology and allied health).

Zolton Zsigmond uses data from the 1974 Ontario survey to evaluate the quality of employment secured by college and university graduates. An acceptable minimum salary for positions requiring post-secondary credentials was established, based on lowest salaries paid by the Ontario government to new 1974 graduates in jobs requiring a bachelor's degree ($7,600) or diploma ($6,200). It was assumed that university graduates earning less than $7,000 and college graduates earning less than $6,000 were in positions

FIGURE 9

MEDIAN SALARIES BY FIELD OF STUDY FOR COLLEGE AND BACHELOR'S DEGREE GRADUATES EMPLOYED FULL-TIME

COLLEGE GRADUATES

	Gen. Arts & Science	Arts	Community Soc., Rec.	Technology	Practical Arts	Secretarial Clerical	Business Admin.	Allied Health	Education	Household Science
1974 Grads										
Sept. 74	--	6560	7510	8610	8090	5990	7700	9430	5580	--
Sept. 75	--	7780	8390	10580	9610	7180	9250	11380	6930	--
1975 Grads										
Sept. 75	5891	7023	9127	9613	8881	6433	8223	10847	6515	6499
Sept. 76	7000	8495	10213	11103	10437	7465	9550	11913	7175	8049

UNIVERSITY GRADUATES - BACHELOR'S DEGREE

	Gen. Arts & Science	Fine Arts Lang. & Lit.	Social & Behavioral Science	Mathematics & Nat. Sci.	Engineering & Arch.	Secretarial Science	Business Admin. & Ec.	Medical & Allied Health	Education	Household Science
1974 Grads										
Sept. 74	7080	7680	7830	9020	10090	8060	8760	10460	8970	6500
Sept. 75	9320	9900	10120	10860	12840	9680	10765	12780	10990	10510
1975 Grads										
Sept. 75	8499	8363	9421	10166	11928	8249	10239	12358	10552	9000
Sept. 76	10957	10883	11260	11863	14036	11347	11760	13287	12895	12166

Source: Highlight Reports: Surveys of 1974 and 1975 Ontario College and University Graduates.

not requiring post-secondary education. The results of this exercise (Figure 10) show that underemployment (as measured by this criterion) drops significantly for university graduates after the first year of employment. 19% of bachelor's graduates who majored in general arts and science, humanities and social science earned less than the minimum in the second reference period. The poorest record shown for bachelor's degree disciplines equals the percentage underemployed in the total college cohort. Although salary alone is not an entirely reliable indicator of satisfactory employment, the data in Figure 10 provide clear evidence that not all community college programmes are a sure ticket to lucrative employment.

A national Statistics Canada survey questioned 1976 university and college graduates regarding their full-time employment during fixed reference periods up to two years after graduation. One month after graduation (Figure 11) the employment rate of all university graduates exceeded that of college graduates (77.8% to 73.2%). In the second reference period, the college graduates' employment rate was better (88.1% to 82.2% for all university graduates). By May-June 1978, the university record was significantly improved - the employment rate was only one percentage point below that of the college group, although the rate for bachelors degrees was slightly lower than that for all university graduates.

Graduate employment rates differ significantly by discipline and degree level (Figures 12 and 13). Two years after graduation, nearly 30% of

FIGURE 10

Table V-15. - Proportion of 1974 CAAT Graduates Employed Full-time and Earning Less Than $6,000 Annually

-By Field of Study-

Field of Study	Number Employed in 1975	% Earning Less Than $6,000 in Sept., '74	% Earning Less Than $7,000 in Sept., '75
a. Creative & Visual Communication, Community, Recreational & Social Services	1.494	25%	27%
b. Secretarial, Stenographic	1,244	50%	45%
c. Education Services & Household Science	384	61%	53%
d. Technology, Technicians & Tradesmen	1,992	7%	7%
e. Business Admin., Marketing and Accounting	1,067	15%	13%
f. Health Field	2,842	10%	7%
g. Total	9,023	20%	19%

Source: Ontario Ministry of Colleges and Universities and Statistics Canada. 1974 College and University Graduates Survey, preliminary tabulations.

Table V-16. - Proportion of 1974 University Graduates with Bachelor's Degrees Employed Full-time and Earning Less Than $7,000 Annually

-By Field of Study-

Field of Study	Number Employed in 1975	% Earning Less Than $7,000 in Sept., '74	% Earning Less Than $8,000 in Sept., '75
a. Gen. Arts & Science, Humanities, Social & Behavioural Sciences	3,934	38%	19%
b. Math, Natural & Physical Sciences	1,414	15%	12%
c. Engineering, Architec.	1,103	4%	2%
d. Business Admin., Economics	1,097	7%	7%
e. Education	2,059	6%	6%
f. Secretarial & Household Sci.	273	43%	19%
Total	10,344	17%	11%

Source: Ontario Ministry of Colleges and Universities and Statistics Canada. 1974 College and University Graduates Survey, preliminary tabulations.

FIGURE 11

TABLE 1. Full-time Employment Rate[1] of 1976 University and College Graduates Who Were in the Labour Force[1] During Three Reference Periods, by Province of Qualification and Sex

TABLEAU 1. Taux d'emploi à plein temps[1] des diplômés de 1976 des universités et collèges qui faisaient partie de la population active[1] au cours des trois périodes de référence, selon la province de scolarisation et le sexe

Province of Qualification — Province de scolarisation		University Graduates — Diplômés des universités			College Graduates — Diplômés des collèges		
		One month after completion — Un mois après l'achèvement du programme	October 1977 — Octobre 1977	May 28 to June 3, 1978 — 28 mai au 3 juin, 1978	One month after completion — Un mois après l'achèvement du programme	October 1977 — Octobre 1977	May 28 to June 3, 1978 — 28 mai au 3 juin, 1978
		Per cent					
Newfoundland — Terre-Neuve	M-H	79.4	89.9	91.2	75.8	81.3	86.4
	F	75.4	88.4	91.3	87.6	94.6	94.1
	T	77.7	89.2	91.2	83.2	89.6	91.2
Prince Edward Island — Île-du-Prince Édouard	M-H	81.1	82.1	84.7	85.4	97.9	93.8
	F	82.4	82.0	84.1	77.9	85.7	91.5
	T	82.0	82.5	84.8	81.0	90.4	92.4
Nova Scotia — Nouvelle-Écosse	M-H	75.8	81.0	86.2	86.1	95.7	94.6
	F	65.2	76.1	84.1	64.6	86.8	93.0
	T	71.0	78.7	85.3	72.2	89.9	93.6
New Brunswick — Nouveau-Brunswick	M-H	81.4	85.8	91.8	82.8	98.3	98.4
	F	76.7	84.4	87.4	83.2	93.4	91.0
	T	78.9	85.0	89.6	83.1	94.4	92.1
Ontario	M-H	79.4	81.6	91.0	77.8	89.9	92.9
	F	73.5	80.4	85.9	64.2	85.0	86.2
	T	76.7	81.1	88.6	69.6	86.9	88.9
Manitoba	M-H	84.9	83.6	90.8	84.2	93.5	96.5
	F	76.1	80.1	86.2	72.9	93.4	92.4
	T	81.1	82.0	88.8	77.6	93.4	94.1
Saskatchewan	M-H	90.0	90.6	94.8	80.1	96.8	92.2
	F	82.0	85.5	89.1	80.7	89.8	90.9
	T	86.5	88.2	92.3	80.6	91.9	91.4
Alberta	M-H	88.8	90.2	96.6	91.5	94.2	95.1
	F	78.3	83.5	90.3	78.2	88.7	89.4
	T	84.1	87.1	93.7	84.8	91.4	92.2
British Columbia — Colombie-Britannique	M-H	80.5	83.8	89.7	74.7	92.1	93.8
	F	70.9	77.6	84.2	75.3	79.6	88.1
	T	76.5	82.9	87.3	75.3	85.8	91.0
Total	M-H	81.1	83.4	91.3	80.2	91.1	93.4
	F	73.9	80.8	86.4	68.3	86.0	87.6
	T	77.8	82.2	89.0	73.2	88.1	90.0

(1) See explanation, page 9. Voir explications, page 9.

Source: Statistics Canada, Employment of 1976 University and College Graduates

of fine and applied arts graduates with bachelor's degrees were unable to find full-time employment. Master's degree holders in the same discipline group were in an even worse position. Humanities bachelors and masters averaged about 15% unemployed, but humanities doctorates had the worst record for the PhD graduates - only 80% had found full-time employment after 2 years. An unknown percentage of these graduates are employed part-time, but are looking for full-time work. The survey does not provide information on the nature of part-time work, or its relationship to the search for full-time jobs. Employment rates by discipline are not given by sex in these tables, but Figure 11 shows women in most provinces had full-time employment rates about 5% lower than those of men. The reason for this is not clear - are women having difficulty because of discrimination in the labour market, or because they have degrees in disciplines for which there is little demand - humanities, education and fine arts?

Graduates of college programmes in fine arts and general arts and science, also have much lower rates of employment than graduates from more vocationally oriented disciplines. The 68.4% employment rate for 1-year diplomas in transportation may be an anomaly. Graduates of 3 and 4 year trades and crafts programmes in Ontario have an employment rate of only 83.3%, lower than that of humanities bachelors graduates. Employment prospects are obviously very good for some community college programmes, such as data processing and computer science, but the community college diploma in itself does not ensure significantly better employment prospects than the university degree. At all levels, finding immediate full-time

FIGURE 12

TABLE 2a. Full-time Employment Rate[1] of 1976 University Graduates Who Were in the Labour Force[1] During the Week of May 28 to June 3, 1978, by Field of Study and Qualification Level

TABLEAU 2a. Taux d'emploi à plein temps[1] des diplômés de 1976 des universités qui faisaient partie de la population active[1] pendant la semaine du 28 mai au 3 juin 1978, selon le domaine d'études et le niveau de scolarité

Field of Study / Domaine d'études		Qualification Level — Niveau de scolarité			
		Bachelors / Baccalauréats	Masters / Maîtrises	Doctorates / Doctorats	Total
Business Management and Commerce — Gestion des affaires et commerce	%	95.6	97.4	100.0	96.0
Education — Éducation	%	90.1	94.8	93.6	90.6
Fine and Applied Arts — Beaux-arts et arts appliqués	%	70.7	66.2	100.0	70.6
Humanities — Lettres	%	86.5	84.6	80.0	86.2
Social Sciences — Sciences sociales	%	87.0	86.3	94.5	87.1
Agricultural and Biological Sciences — Sciences agricoles et biologiques	%	87.6	88.2	88.9	87.6
Engineering and Applied Sciences — Génie et sciences appliquées	%	94.3	94.9	100.0	94.6
Health Professions — Professions de la santé	%	95.5	91.9	100.0	95.4
Mathematics and Physical Sciences — Mathématiques et sciences physiques	%	89.0	87.0	92.4	88.9
General (No Specialization) — Général (Aucune spécialisation)	%	87.8	86.1	98.1	87.9
Total	%	88.8	90.6	93.3	89.0

(1) See explanation, page 9. Voir explications, page 9.

Source: Statistics Canada, Employment of 1976 University and College Graduates

FIGURE 13

TABLE 2b. Full-time Employment Rate[1] of 1976 College Graduates Who Were in the Labour Force[1] During the Week of May 28 to June 3, 1978, by Field of Study and Qualification Level

TABLEAU 2b. Taux d'emploi à plein temps[1] des diplômés de 1976 des collèges qui faisaient partie de la population active[1] pendant la semaine du 28 mai au 3 juin 1978, selon le domaine d'études et le niveau de scolarité

Field of Study / Domaine d'études		Qualification Level – Niveau de scolarité			
		Diploma – Diplôme			Total
		1 year / an	2 years / ans	3–4 years / ans	
Fine, Applied and Performing Arts – Beaux-arts, arts appliqués et arts d'interprétation	%	88.6	82.0	70.9	77.6
Business Management and Commerce – Gestion des affaires et commerce	%	98.3	91.6	92.6	92.1
Secretarial Arts and Science – Secrétariat	%	91.9	91.7	100.0	91.8
Data Processing and Computer Science – Traitement des données et informatique	%	100.0	97.8	99.0	98.3
Primary Industries – Industries primaires	%	88.7	91.6	95.7	91.7
Medical and Dental Services – Services médicaux et dentaires	%	86.8	87.7	91.3	88.2
Engineering and Related Technologies – Génie et techniques connexes	%	90.1	94.5	92.9	93.9
Transportation – Transports	%	68.4	100.0	98.1	94.7
Mass Communication – Communications de masse	%	95.7	89.2	85.8	88.6
Community Services, Social Welfare and Household Sciences – Services communautaires, service social et sciences ménagères	%	85.3	88.8	91.3	88.6
General Arts and Sciences, Education and Law – Arts et sciences généraux, éducation et droit	%	75.4	83.3	71.4	82.1
Applied Sciences (Ontario only) – Sciences appliquées (Ontario seulement)	%	–	96.9	94.5	96.2
Trades and Crafts (Ontario only) – Arts et métiers (Ontario seulement)	%	93.9	93.6	83.3	91.8
Total	%	88.8	90.1	90.3	90.0

(1) See explanation, page 9. Voir explications, page 9.

Source: Statistics Canada, Employment of 1976 University and College Graduates

employment appears to be a problem for those who have studied arts, humanities and social sciences.

The intrinsic value of a liberal arts education should not be discounted. However, when as many as 15% of university graduates from certain disciplines are unable to find full-time jobs two years after graduation, there will obviously be some questioning of the value of purely academic education. It is not simply that these people have not found employment in their fields or at a level utilizing their education - they have apparently been unable to find any kind of full-time work. While universities certainly should "make clear to students that bachelor's degrees in arts and science, not being job-specific, do not of themselves qualify a graduate for any particular form of employment, still less guarantee any particular form of employment",[12] they will also have to accept that many students will opt for more practical programmes. One possible alternative would be a non-vocational liberal arts education, supplemented by some practical experience or skills that would help the graduate enter the work force. At present, the individual student must acquire these skills outside the regular degree programme.

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[12] The Role of the University with Respect to Enrolments and Career Opportunities, Admission Policies, Continuing Education and Community Colleges, AUCC Policy Studies, No 1 (Ottawa: 1977), p. 6.

The Statistics Canada survey provides limited information on the quality of jobs held by college and university graduates. As in the surveys of 1974 and 1975 Ontario graduates, median salary data show that in financial terms, employed bachelor's degree recipients in most disciplines are in a better position two years after graduation than those with 3 or 4 year college diplomas (Figures 14 and 15). The median salaries of college graduates from technical programmes such as data processing, engineering and applied sciences are roughly equivalent to the median for all bachelor's degrees ($14,813). Graduates with master's degrees have a higher median than those with doctorates.

The 1976 survey also questioned graduates about the relationship between current job and education. Not unexpectedly, over 60% of diploma holders found a direct relationship between employment and education, compared to 41.3% of bachelor's graduates. However, except for the professional disciplines (business, engineering, law, medicine, education) and perhaps for Ph.D's, a direct correspondence between education and work may not be a significant criterion of satisfactory employment, as will be shown in more detail later.

The Problem of Graduate Underemployment

Recent surveys have used questions about job satisfaction and relationship

FIGURE 14

TABLE 4a. Median Salaries of 1976 University Graduates Who Were Working Full-time During the Week of May 28 to June 3, 1978, by Field of Study, Qualification Level and Sex

TABLEAU 4a. Traitements médians des diplômés de 1976 des universités qui travaillaient à plein temps pendant la semaine du 28 mai au 3 juin 1978, selon le domaine d'études, le niveau de scolarité et le sexe

Field of Study / Domaine d'études		Bachelors / Baccalauréats			Masters / Maîtrises			Doctorates / Doctorats		
		M-H	F	T	M-H	F	T	M-H	F	T
Business Management and Commerce – Gestion des affaires et commerce	No.-nbre	2,324	547	2,877	764	119	886	6	1	7
	$	15,004	13,373	14,717	22,000	19,056	21,557	...	...	...
Education – Éducation	No.-nbre	4,086	5,853	9,979	961	420	1,385	42	18	70
	$	15,648	14,773	15,128	26,049	22,210	25,075	24,800	21,000	25,125
Fine and Applied Arts – Beaux-arts et arts appliqués	No.-nbre	430	565	1,000	22	19	41	1	1	1
	$	12,494	12,445	12,448	18,667	14,875	15,900	...	...	...
Humanities – Lettres	No.-nbre	2,259	2,820	5,097	340	391	731	55	28	83
	$	13,759	13,621	13,672	15,714	15,419	15,510	17,833	18,250	17,875
Social Science – Sciences sociales	No.-nbre	4,788	4,032	8,826	610	397	1,010	169	42	210
	$	15,305	13,702	14,663	19,578	17,087	18,363	23,571	20,571	22,828
Agricultural and Biological Sciences – Sciences agricoles et biologiques	No.-nbre	1,508	1,362	2,875	116	51	166	44	5	48
	$	14,221	12,629	13,315	16,588	14,333	15,871	17,750	...	18,000
Engineering and Applied Sciences – Génie et sciences appliquées	No.-nbre	2,416	57	2,479	444	10	454	83	–	83
	$	17,657	14,833	17,609	21,765	...	21,676	22,500	–	22,500
Health Professions – Professions de la santé	No.-nbre	865	1,502	2,383	47	57	104	36	12	48
	$	19,068	15,315	15,973	25,143	18,417	18,833	21,600	...	21,200
Mathematics and Physical Sciences – Mathématiques et sciences physiques	No.-nbre	1,648	450	2,098	231	49	279	135	8	143
	$	15,139	13,980	14,818	18,233	16,688	17,694	19,632	...	19,632
General (No Specialization) – Général (Aucune spécialisation)	No.-nbre	2,325	2,665	5,015	107	38	145	80	7	99
	$	14,786	13,592	14,202	20,143	15,250	18,808	21,200	...	21,350
Total	No.-nbre	22,648	19,850	42,625	3,643	1,545	5,207	658	125	792
	$	15,393	14,152	14,812	21,772	17,546	20,420	21,742	19,875	21,565

Source: Statistics Canada, Employment of 1976 University and College Graduates

FIGURE 15

TABLE 4b. Median Salaries of 1976 College Graduates Who Were Working Full-time During the Week of May 28 to June 3, 1978, by Field of Study, Qualification Level and Sex

TABLEAU 4b. Traitements médians des diplômés de 1976 des collèges qui travaillaient à plein temps pendant la semaine du 28 mai au 3 juin 1978, selon le domaine d'études, le niveau de scolarité et le sexe

Field of Study / Domaine d'études		1 Year Diploma / Diplôme d'un an			2 Year Diploma / Diplôme de deux ans			3-4 Year Diploma / Diplôme de trois ou quatre ans		
		M-H	F	T	M-H	F	T	M-H	F	T
Fine, Applied and Performing Arts - Beaux-arts, arts appliqués et arts d'interprétation	No.-nbre	36	18	52	69	162	230	111	87	198
	$	7,000	6,500	7,000	10,054	8,280	8,900	10,848	9,575	10,314
Business Management and Commerce - Gestion des affaires et commerce	No.-nbre	17	25	47	800	452	1,256	567	139	707
	$	13,800	8,500	9,688	13,538	10,338	12,450	13,582	10,773	13,085
Secretarial Arts and Science - Secrétariat	No.-nbre	-	483	483	-	1,194	1,177	-	6	6
	$	-	9,185	9,185	-	9,076	9,081	-	...	...
Data Processing and Computer Science - Traitement des données et informatique	No.-nbre	6	6	12	219	121	344	158	38	194
	$	...	...	...	13,745	12,167	13,209	14,962	14,500	14,806
Primary Industries - Industries primaires	No.-nbre	16	36	51	829	176	1,009	58	19	77
	$	11,000	7,625	8,318	13,441	9,625	12,908	13,368	11,500	12,826
Medical and Dental Services - Services médicaux et dentaires	No.-nbre	53	433	486	211	4,012	4,248	79	911	996
	$	13,850	10,289	10,597	14,127	12,884	12,945	14,920	13,281	13,366
Engineering and Related Services - Génie et techniques connexes	No.-nbre	66	11	76	1,959	215	2,196	718	102	821
	$	14,300	...	13,789	14,291	11,817	14,084	14,013	10,579	13,738
Transportation - Transports	No.-nbre	6	-	6	57	-	57	44	4	48
	$	...	-	...	14,238	-	14,238	15,143	...	15,010
Mass Communication - Communications de masse	No.-nbre	10	11	21	277	146	421	91	31	122
	$	...	...	9,875	11,460	10,382	10,898	11,750	10,250	11,611
Community Services, Social Welfare and Household Sciences - Services communautaires, service social et sciences ménagères	No.-nbre	47	334	378	813	1,523	2,337	99	157	255
	$	11,778	9,729	9,891	13,354	10,466	11,060	13,341	9,060	10,431
General Arts and Science, Education and Law - Arts et sciences généraux, éducation et droit	No.-nbre	2	33	35	120	665	785	18	34	51
	$	...	8,786	8,929	13,667	8,604	8,965	11,000	9,000	9,056
Applied Sciences (Ontario only) - Sciences appliquées (Ontario seulement)	No.-nbre	-	-	-	475	29	504	180	33	214
	$	-	-	-	13,521	10,500	13,378	14,538	11,409	13,953
Trades and Crafts (Ontario only) - Arts et métiers (Ontario seulement)	No.-nbre	182	10	192	192	74	263	57	34	92
	$	13,226	...	13,226	11,659	9,000	11,189	10,500	10,429	10,476
Total	No.-nbre	449	1,399	1,851	6,030	8,746	14,847	2,201	1,621	3,831
	$	13,237	9,515	10,211	13,638	11,348	12,261	13,758	12,463	13,129

Source: Statistics Canada, Employment of 1976 University and College Graduates

of education and employment to assess the degree of "underemployment" experienced by graduates. The concept of underemployment is difficult to define and even more difficult to measure, but certainly many of the arts and humanities graduates who are unable to find full-time employment after two years would consider themselves underemployed. Other indications of underemployment may be the acceptance of jobs not traditionally filled by university graduates, or of salaries lower than those held by earlier generations of graduates.

Not all university graduates face equal propects of underemployment, as a recent U.S. study shows. This study estimates that 75% of graduates in the seventies will replace persons withdrawing from the labour market or will take jobs in expanding occupations now filled by university-trained personnel.[13] The remaining 25% will have to enter jobs not traditionally held by university graduates. Because of technological change and job redesign, some of these positions will be upgraded to a level more suited to the new employees. Probably about half of the 25% who enter non-traditional jobs will find that their positions cannot be upgraded, and will remain to some degree frustrating and unsatisfactory. Thus, the potential underemployment problem will be faced by about 10%, rather than 100% of university graduates. Figure 16, taken from a U.S. Department of Labor publication, compares job categories held by graduates in the sixties and the seventies. The percentage entering professional and technical occupations has decreased, and the percentages in service, craft, clerical and sales jobs have increased.

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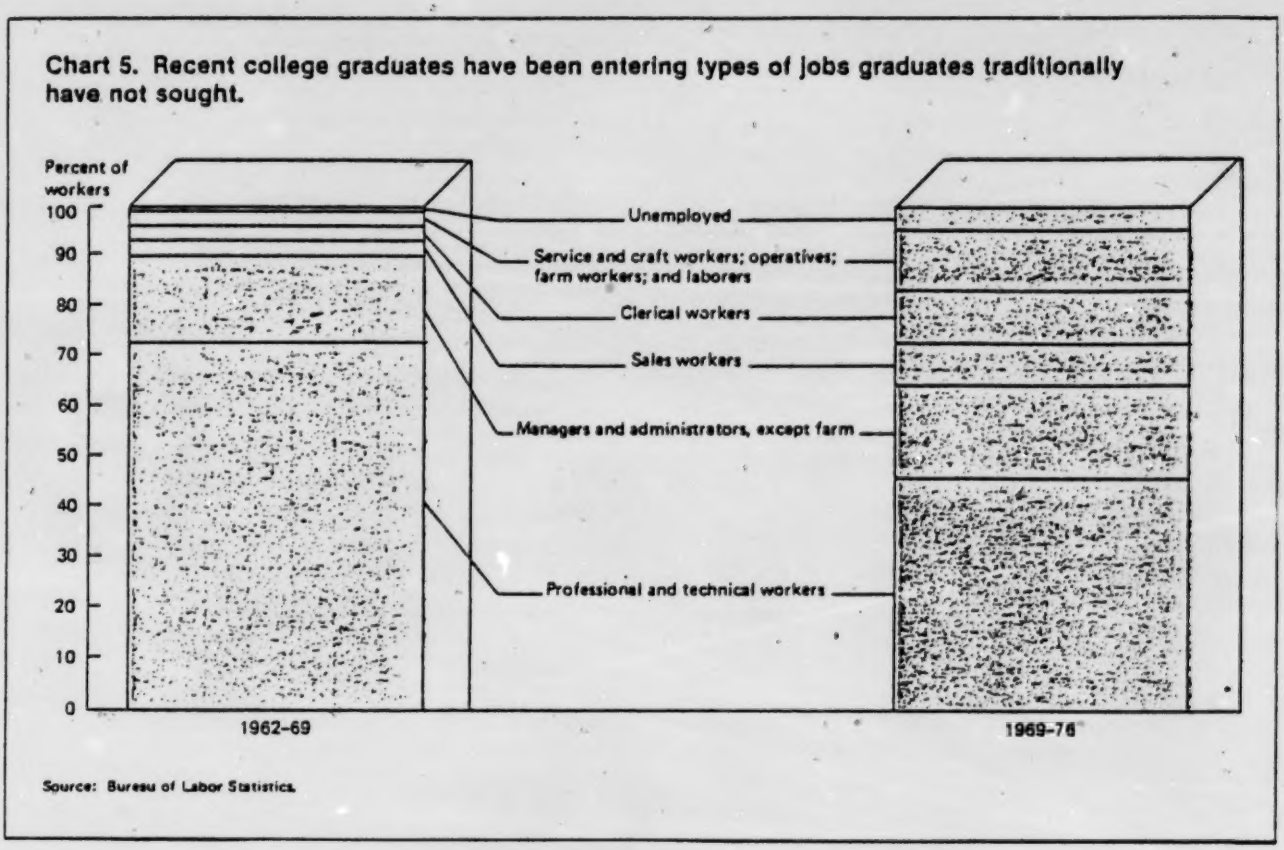
[13] College Graduates and Jobs: Adjusting to a New Labor Market Situation (New York: Carnegie Commission on Higher Education, (1973), pp. 3-4.

FIGURE 16



Source: Occupational Projections and Training Data (Washington: U.S. Department of Labour, Bureau of Labour Statistics, 1979), p. 20

Ideas about what constitutes suitable employment for a university graduate are changing. Writers on the subject frequently mention the adaptability of American graduates, who are more willing than their European or Asian counterparts to accept "blue-collar" jobs, and are thus able to adjust fairly rapidly to employment trends.[14] Presumably Canadians are similarly willing to accept less than ideal jobs. Because the university participation rate in North America is higher than in Europe, this adaptability is a virtue born of necessity. Traditional degree-related employment is simply not available for many graduates who have not prepared for the professions, or who have prepared for professions not now in great demand, such as teaching and research.

It now seems unlikely that "counterculture" economic activity such as communes or craft work will absorb very many new graduates. It also seems unlikely that large-scale social upheaval will result from frustrated under-employed graduates. The real social problem resulting from the surplus of university graduates will probably be the "bumping-down" of those with less education, as bachelor's graduates take clerical and lower-level white collar jobs formerly held by high school graduates and high school graduates take jobs once held by those with fewer years of education.

In The Over Educated American, Richard Freeman analyses underemployment in economic terms, and reports that the real starting salaries of American college graduates employed in industry (deflated by the consumer price index) declined

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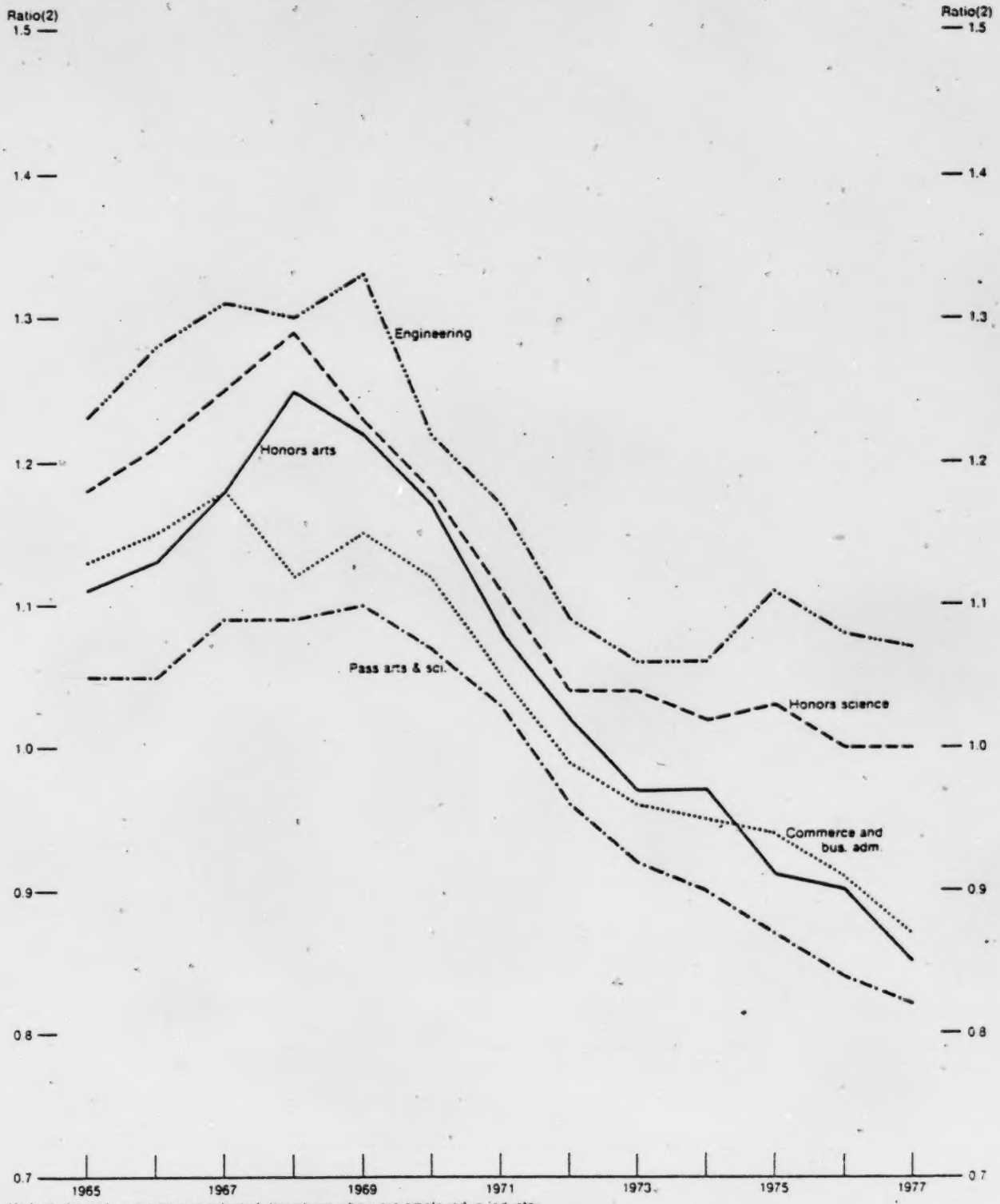
[14] College Graduates and Jobs, p. 5; and Entry of Young People into Working Life (Paris: OECD, 1977), p. 13

FIGURE 17

Average starting salaries of bachelor's degree graduates[1] compared with average industrial earnings, Canada, 1965-77



(1) Includes only graduates in selected disciplines who were employed in industry
(2) Ratio of average starting salary for graduates to average earnings in industry (industrial composite)
Sources: Survey of Recruiting Rates for University and Community College Graduates, Pay Research Bureau, Public Service Staff Relations Board And Employment, Earnings and Hours Statistics Canada (72-002)

Source: Future Trends in Enrolment, p. 41

FIGURE 18

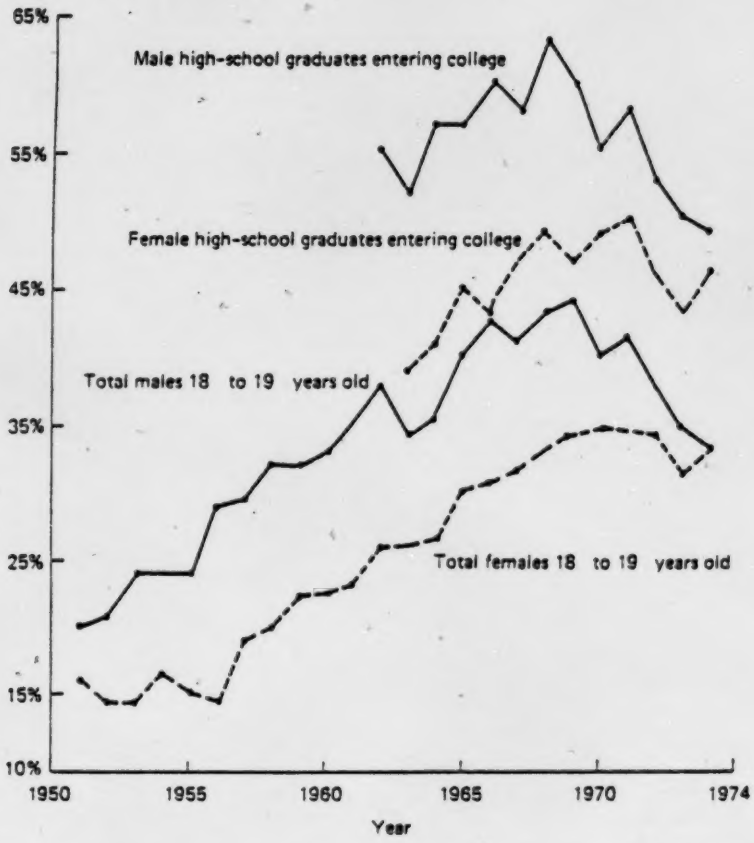


Figure 6. Proportion of young men and women enrolled in college, 1951–1974 (from U.S. Bureau of the Census, "School Enrollment," *Current Population Reports*, Series P-20; various editors, 1950–1974; U.S. Bureau of Labor Statistics, *Employment of High School Graduates and Dropouts*, Special Labor Force Report, No. 168, (Oct. 1973) p. 50; *Monthly Labor Review* (Aug. 1974), p. 35; with 1974 update).

Source: The Over Educated American, p. 35

substantially between 1960 and 1976. Figure 17 shows the starting salaries of Canadian bachelor's degree graduates for 1965 through 1977 compared to average industrial earnings. Even the highly favoured engineering graduates have shown a loss of real income since the late sixties. Although the recession in the United States in the early seventies was partly responsible for a reduction in salaries for graduates, Freeman concludes that "however calculated, the statistics show declines in the monetary returns to college investments in the 1970's." [15] He also finds that the student population has been remarkably responsive to poor employment prospects, resulting in a decline in the participation rate of white males (Figure 18), a shift from humanities and social sciences, and lower graduate enrolments, particularly in the natural sciences. The labour market position for new bachelor's graduates should improve in the early 1980's, since the lower participation rate and decline in the university age population will produce fewer graduates.

Job Satisfaction

Is employment in the graduate's major field necessarily related to job satisfaction? As noted previously, the Statistics Canada survey of 1976 graduates tabulates the respondents' assessment of the relationship

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[15] Freeman, The Over-Educated American, p. 27.

between job and education. In total, 41.3% of bachelor's graduates reported a direct relationship between employment and education. By discipline, the range was from 22.1% in humanities to 83.7% in the health professions. Over 60% of college graduates reported a direct relationship between current job and education.

Results such as these are interpreted in some quarters as evidence of a gross mismatch between education and employment. Commentators extolling the virtues of vocational training may infer that a job which does not make direct use of an undergraduate major is unsatisfactory. However, studies of career patterns several years after graduation suggest that arts and science graduates may attain a high degree of job satisfaction in jobs not related to their undergraduate major. The 1973 Canadian survey of highly qualified manpower revealed that with the exception of health professionals and lawyers, there is a wide variation in the extent to which occupations are education specific. Graduates are often not employed in their university discipline. For example, 44% of government administrators majored in social science, 10% in agricultural and biological sciences, and 16% in architecture and engineering. The rest had degrees in a variety of other specialities.[16]

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[16]Bill Ahamed et al. Degree-Holders in Canada: An Analysis of the Highly Qualified Manpower Survey of 1973 (Ottawa: Secretary of State, 1979), p.37.

A U.S. survey of 1965 bachelor's degree recipients nine years after graduation found that specific skills learned in university and the content of major courses were less important in employment than were more general benefits of higher education, such as an increase in general knowledge, leadership qualities, or the ability to think clearly and communicate effectively.[17] When respondents to this survey were asked what courses would be most useful in preparing for a job like theirs, 32% recommended psychology, 31% business and 30% English, "that non-vocational subject not generally considered useful in the job market".[18]

The U.S. study also revealed considerable difference of opinion about what constitutes a good job. The great majority of persons holding jobs not related to their university major were doing so voluntarily, and were generally satisfied with their present positions. Noting that most studies find that younger workers are less satisfied with their jobs than older workers, Solmon and Bisconti are skeptical of the view that today's generation of recent graduates is markedly more dissatisfied than previous graduates with similar short periods of work experience. In the longer term, job satisfaction does not require a close match between undergraduate education and employment:

> In attempting to explain individual differences in both income and job satisfaction, after accounting for such individual characteristics as grade-point average, type of institution attended, years on the job, and the like, whether or not an individual thinks he is working in the field for which he was trained adds virtually nothing to the ability of the model to explain these differences.[19]

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[17] Lewis C. Solmon, Ann S. Bisconti and Nancy L. Ochsner, College as a Training Ground for Jobs (New York, 1977).

[18] Ibid, p.144.

[19] Ibid, p.152.

The study also revealed inadequacies in the subjective types of questions frequently used to assess "suitable employment":

> Only 32% of the respondents think their skills are fully utilized on the job. This fact does not indicate a failure of college training. Indeed, this feeling is pervasive among those in the most directly related jobs. Even people in high-level or prestigious jobs think they have many skills that are not used. These talents were not necessarily acquired in college.[20]

Another study of U.S. bachelor's degree recipients (1958 graduates, surveyed in 1960) also suggests that the need for a direct education - job correspondence may have been overemphasized. Although teachers in this survey tended to see the closest connection between their undergraduate education and their job requirements, "business majors at work on business or administrative jobs most often saw little or no connection between their education and job".[21] Apparently the content of courses in business programmes are less important than personal characteristics and on-the-job experience. If this is true, one would expect humanities or social science majors to perform as well, given similar motivation, temperament, general aptitude, and access to entry-level jobs that lead to promotion in business. Solmon and Bisconti conclude that the credentialing function of university education will be even more important in the future, as more of the population acquires higher education.[22] Although a job may not require particular skills or knowledge gained in university, the possession of a B.A. is evidence of

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[20] Ibid, p. 156

[21] Laure M. Sharp, Education and Employment: The Early Careers of College Graduates (Baltimore Johns Hopkins Press, 1970) pp. 67-68

[22] College as a Training Ground for Jobs, p. 159

an applicant's maturity, motivation and aptitude for further learning, and thus provides the employer with a means of selecting suitable candidates who will then acquire additional training on the job. The ready availability of graduates with the minimum credential has allowed employers to become more selective with respect to a specific credential they may be seeking and at the same time, perhaps, less selective with regard to personal characteristics and general aptitude. Employers in business will choose graduates from commerce and management programmes, not simply because these people have specific skills that are of immediate use, but because the possession of the commerce degree credential is accepted as evidence of certain attitudes and personal characteristics that are compatible with those of the employer. The humanities or social science major who would have been hired in the past for a management trainee position is passed over, since his credential is no longer regarded as conveying specific information about the general aptitudes and attitudes that the employer is seeking.

Although technical advances in business, such as the use of computers, justify the selection of more specialized graduates for entry-level positions, the over supply of university graduates tends to discount the credential value of the general degree. With more and more university students opting for commerce and other vocationally-oriented programmes, the liberal arts graduate will be faced with even greater competition for non-specialized business jobs. Solmon and Bisconti's study shows that bachelor's graduates are generally successful once they have entered the labour market, but today it is difficult to gain entry without at least a minimum of marketable skills. Many graduates will be faced with the need for further training, which will probably be done at their own

initiative and expense. It is highly unlikely that the business community will undertake extensive training programmes when they can easily hire university or community college graduates who have studied "practical" subjects.

The Limitations of Manpower Planning

The increased specialization required for trainee business positions reflects both actual changes in job function and the employer's response to a surplus of highly qualified applicants. This type of market-place interaction between demand for and supply of highly trained personnel makes accurate manpower planning very difficult. A concise discussion of recent manpower studies appears in an ERIC/Higher Education Research Report.[23] Past attempts to project supply and demand were often in error because they did not take into account the market relationship between the availability of workers with certain levels of education and the demands of employers for people with such education. These so-called "fixed co-efficient" models were unable to adjust for the tendency of minimum education or skill levels for a given job to rise when workers with that level of training are readily available, and also for the supply of trained graduates to increase in fields where job prospects are particularly good. Newer manpower models are market-responsive,

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[23]Donald M. Norris, William F. Lasher and Floyd S. Brandt, Manpower Studies in Post-Secondary Education (ERIC Research Report No. 10, 1977).

enabling forecasters to incorporate the effects of this market-place interaction between supply and demand. While acknowledging the increased sophistication of manpower projection, the authors of the ERIC report feel that not enough is known about "student collective choice behavior" to make even the newest models consistently accurate and useful vehicles for detailed planning of university programmes:

> The history of manpower projections in the U.S. and abroad suggests that a two-to-three-year forecast is the maximum that can be undertaken with sufficient accuracy to guide policy making. This suggests that active government 'fine-tuning' of the labour market based on manpower supply and demand studies should be limited to the occupational end of the manpower continuum .....governmental intervention in higher education should be concerned with providing long-range support for important educational goals, leaving major market adjustments to individuals and institutions.[24]

A declining participation rate in universities and shifts to vocational programmes indicate that many individuals are already making "market adjustments". Very little is known about the nature of student decision making, or the career prospects of those who forego university entirely.

There is inevitably a lag of a few years before the supply of highly qualified manpower can adjust to demand. Students and their advisors may not be well-informed of the current labour market, and in some fields, post-graduate training is required. Students now in high school should be looking at employment prospects about 1990 if they are considering doctoral or specialized professional education. Accurate projections at least five years in advance would be needed in order to make a reasonable attempt

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[24] Ibid, p.3

to match supply and demand. At present, current demand or demand one or two years ago appears to affect supply four or five years ahead.

Historically university enrolments in engineering, law and accounting have fluctuated in response to market demand for professionals in those fields, a phenomenon known to economists as "cobweb dynamics".[25] The classic cobweb mechanisms produce alternative over-supplies and shortages in fields where education and employment are closely related, and students are highly responsive to labour market conditions. During periods of shortage, wages are high and jobs are plentiful, so enrolments increase. This tends to produce a surplus of graduates a few years later, which in turn leads to lowered wages, and lower enrolments in the next cycle. The current surplus of elementary, secondary and university teachers was caused in part by similar mechanisms, although the demand side in this case has been affected by demographic factors as well as economic ones. The high birthrate of the baby boom years produced excellent employment prospects for teachers in the 1950's and 60's. The demand for teachers encouraged high university enrolments, leading to an expansion in that sector and a demand for Ph.D's. The drop in birthrate beginning about 1960 resulted in declining demand for teachers, which has been one factor in the lower participation rate of the 1970's, and the shift from education and arts and science. Demand for university

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[25] See Freeman, The Over-Educated American, pp. 60-62. The cobweb hypothesis is explained in detail by Freeman in The Labor Market for College Trained Manpower: A Study in the Economics of Career Choice (Cambridge, Mass.: Harvard University Press, 1971).

faculty has declined, leaving a pool of PhD's once intent on an academic career whose decision to enrol in several years of advanced education was made on the basis of apparent demand when they were undergraduates.

Most experts in the manpower field acknowledge that projections of future demand for specific occupations are not accurate predictors of what will actually happen. The most sophisticated market responsive models allow for interaction between supply and demand, including factors such as the upgrading of job requirements that occur when there is an oversupply of qualified applicants, technological advances that change job functions, the movement of personnel into other activities (engineers becoming managers), and increased enrolments during periods of high demand.

The Canada Ministry of State for Science and Technology has undertaken an extensive planning project on the supply and demand of highly qualified manpower.[26] It includes a fully computerized highly qualified data bank, based on the occupational classification system used in the 1971 census, and information from the 1973 post-censal survey of highly qualified manpower. The projection model can be used to provide annual information to 1985 on the demand for some 70 H.Q.M. occupations, and on the demand for university graduates by degree level and field of study. A university submodel provides similar information on about 60 different teaching specialties. The CANDIDE model of employment growth

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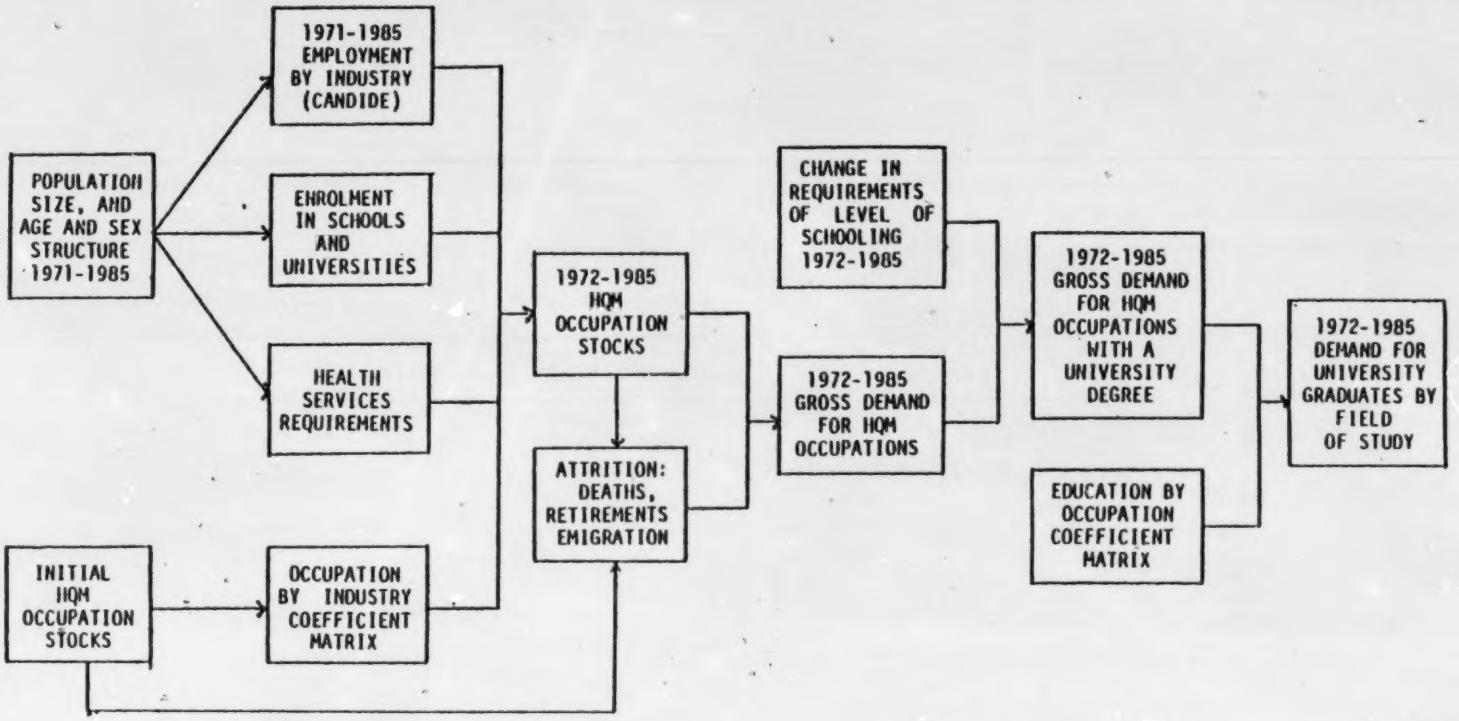
[26] Described in a series of draft reports, including "MOSST Highly Qualified Manpower Project", and "Methodology: MOSST H.Q.M. Demand Model" (Ottawa: Ministry of State for Science and Technology, 1977 and 1978).

FIGURE 19

HQM DEMAND PROJECTION MODEL


POPULATION SIZE, AND AGE AND SEX STRUCTURE 1971-1985
1971-1985 EMPLOYMENT BY INDUSTRY (CANDIDE)
ENROLMENT IN SCHOOLS AND UNIVERSITIES
HEALTH SERVICES REQUIREMENTS
INITIAL HQM OCCUPATION STOCKS
OCCUPATION BY INDUSTRY COEFFICIENT MATRIX
1972-1985 HQM OCCUPATION STOCKS
ATTRITION: DEATHS, RETIREMENTS EMIGRATION
CHANGE IN REQUIREMENTS OF LEVEL OF SCHOOLING 1972-1985
1972-1985 GROSS DEMAND FOR HQM OCCUPATIONS
1972-1985 GROSS DEMAND FOR HQM OCCUPATIONS WITH A UNIVERSITY DEGREE
EDUCATION BY OCCUPATION COEFFICIENT MATRIX
1972-1985 DEMAND FOR UNIVERSITY GRADUATES BY FIELD OF STUDY

Source: "MOSST Highly Qualified Manpower Project", p. 14

by industry is used for economic projections, and allowances are made for disciplinary shifts (persons trained in one area taking jobs in another), and for the upgrading of requirements in many occupations (Figure 19). A preliminary projection of total demand for university graduates through 1985 (Figure 20) shows some improvement after 1980, but peak requirements in 1984 are much lower than those a decade earlier. The authors of the draft reports on the MOSST project caution against trying to match university enrolments to projected demand in specific fields:

> Generally, it is unlikely that enrolment trends can be significantly adjusted by supply-demand conditions for the various fields of study. Should potential students be advised to take up chemistry instead of education, because the over-supply of chemistry graduates is only 2:1, whereas in education it is 20:1? It is almost impossible to say that the chances of obtaining a job would be any better or any worse.[27]

Even in fields such as engineering and accounting, where education and employment are closely linked, especially for new graduates, analysts hesitate to make detailed forecasts of demand. Edward Harvey and K.S.R. Murthy have published estimates of supply and demand for engineers and accountants through 1985.[28] Their models allow for a variety of factors producing low, moderate and high demand and supply. One of the

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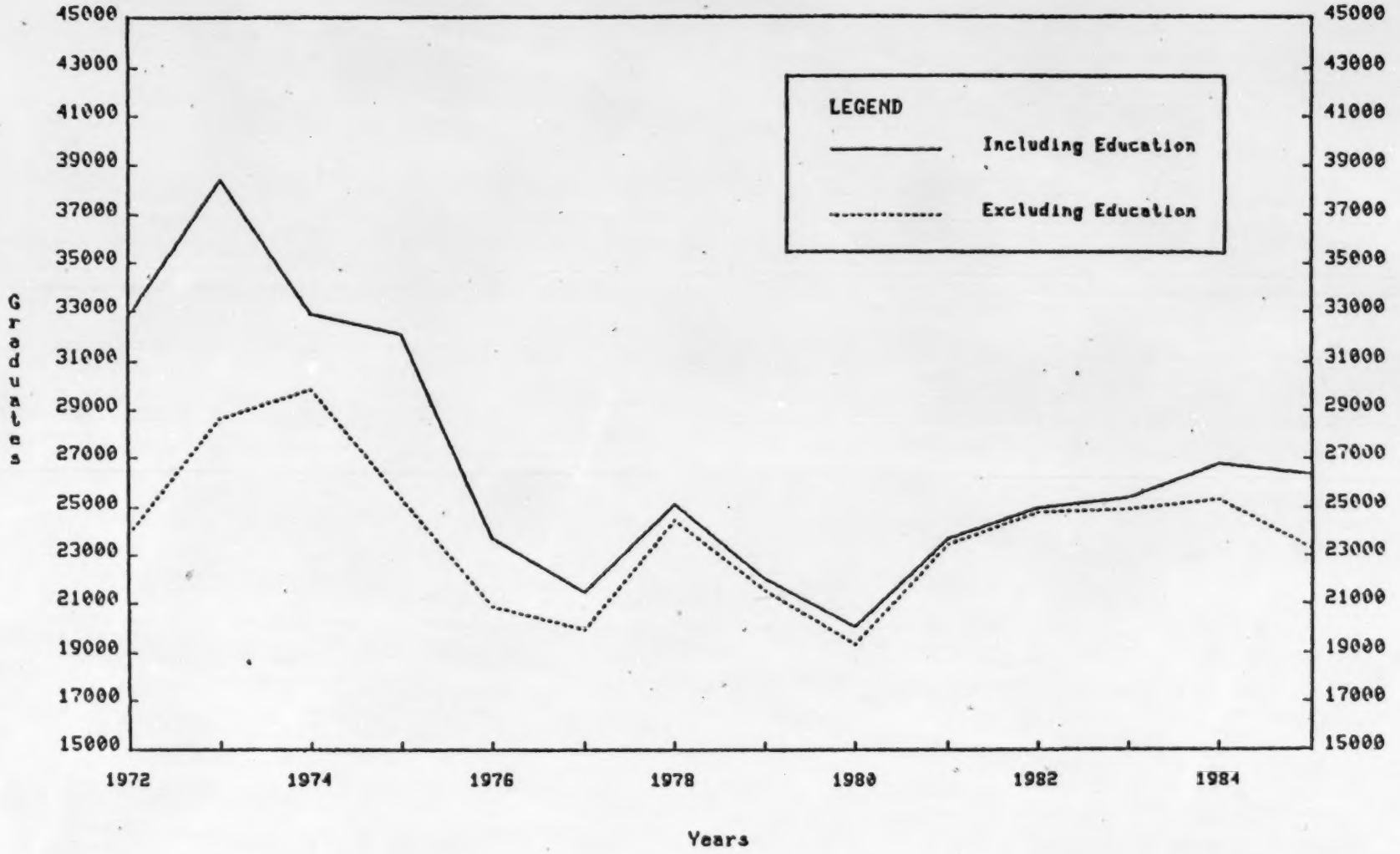
[27] "MOSST Highly Qualified Manpower Project", pp. 14-15.

[28] Supply of and Demand for Accounting Professionals in Canada; and Engineering Manpower, Demand and Supply: Further Estimates (Toronto: Technical Service Council, 1979).

FIGURE 20

Demand for University Graduates - All Levels



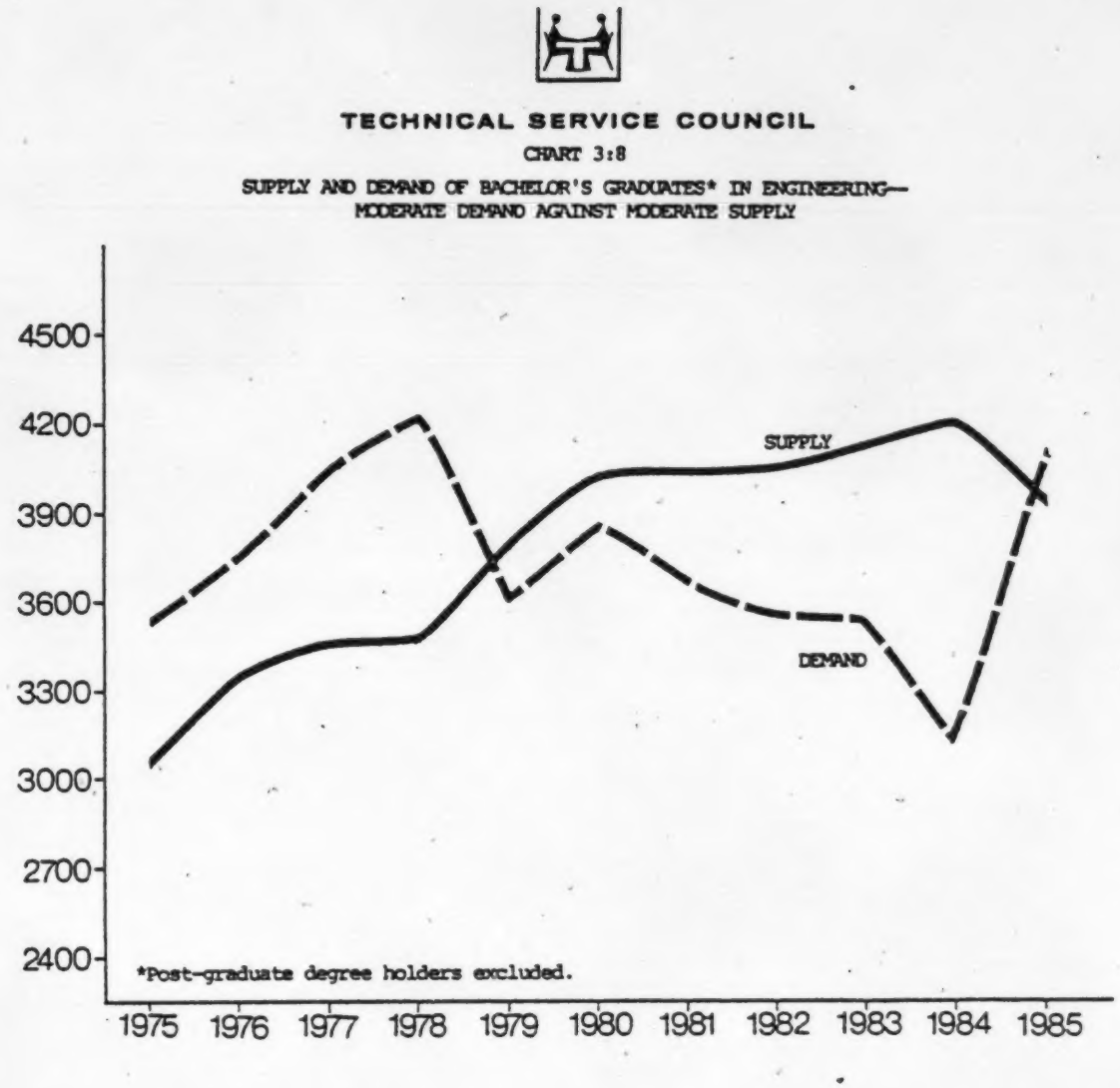
Source: "MOSST Highly Qualified Manpower Project", (1977) p.9

nine possible projections for engineering bachelor's graduates is shown in Figure 21. These projections can indicate gross mismatches of demand and supply, but they certainly are not precise enough for long range planning of university programmes.

Since projecting manpower needs only five or six years in advance is so conditional in professional areas such as engineering, it is clearly impossible to predict requirements for arts and science graduates. Regulation of university enrolment according to future requirements may only be feasible in disciplines such as medicine and education at times when need is seen to be largely determined by demographic factors, i.e., when major changes in social policy are not contemplated. Demand projections in other professional disciplines (accounting, engineering, law) will be less reliable because of fluctuations in the business cycle and the influence of government policy decisions which cannot be predicted.

A strictly planned approach to university enrolments is contrary to a general North American policy of freedom of choice for the individual in the areas of education and career choice. While enrolments in some professions have traditionally been regulated to maintain a constant supply of new entrants to the field, Canadian society has clearly favoured freedom of choice over regulation even while recognizing that unregulated enrolments may lead to oversupply. Even in a highly controlled society, manpower planning may not work well in practice. An article in Change describes the plight of the "Overeducated Russian", often a university trained engineer

FIGURE 21



Source: Engineering Manpower, Demand and Supply: Further Estimates, p.30

who works on a production line or as a farm labourer.[29] Although the Soviet economy suffers from unsophisticated, inefficient manpower planning methods, rather than a lack of manpower planning per se, it appears that the North American free market system is not alone in its surplus of university graduates.

Individual and Institutional Adjustments to the Graduate Employment Problem

A variety of conclusions can be drawn from the available data and analyses of graduate unemployment, but one important point should be stressed: students who decide to attend university and parents who encourage them are not unrealistically ambitious or mistaken about the long-term value of higher education. While some graduates are having difficulty finding suitable employment, and the wage differential between graduates and the general work force has decreased, the economic benefits of a university degree are real, not mythical. Christopher Jencks, in a study[30] based on a number of surveys of 25 to 64 year-old American men, reports that both occupational status and earnings are significantly higher for men with college degrees, even when family background, previous work experience and cognitive ability are controlled. Higher education has an impact on the type of first job a graduate gets, as well as on his occupational status throughout

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[29]"The Over-Educated Russian?" Change, Special Issue: Education and Work, Vol. II, no. 5 (July-August 1979), 62-63.

[30]Christopher Jencks, Who Gets Ahead? The Determinants of Economic Success in America (New York: Basic Books, 1979), pp.176-190.

life. Jencks focuses on the economic component of success - the personal and social benefits of university education probably require less verification.[31] Given the tentative nature of manpower demand projections for specific occupations, it is certainly reasonable for students to base their education and career decisions on the proven record of the university degree. It seems unfair to criticize B.A. graduates for being short-sighted when even the experts seem unable to predict employment demand more than two or three years in advance.

Still, not all students find that the less tangible benefits of non-professional university education are worth the risk of possible unemployment in the future. A shift in enrolment from arts and science to more vocationally-oriented disciplines is shown in Figure 22. Full-time undergraduate enrolment in arts and science peaked at 58% in 1967. Since then, the percentage of students specializing in commerce has increased steadily. Enrolments in education have recently begun to decline, in delayed response to a shortage in teaching jobs since the early seventies.

Graduates from most professional faculties have been relatively immune from the employment problems that have faced arts and science graduates during the past decade. Enrolment in programmes such as medicine and dentistry has historically been limited, and closely tied to requirements

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[31] For detailed analysis, see Howard R. Bowen, et al, Investment in Learning: The Individual and Social Value of American Higher Education (San Francisco: Jossey-Bass, 1978).

FIGURE 22

1960-1977

CANADIAN UNIVERSITY FULL-TIME UNDERGRADUATE ENROLMENT
PERCENTAGES BY FIELD OF SPECIALIZATION

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Arts & Science	49.7	51.6	53.4	54.4	55.7	57.2	57.9	58.0	57.5	56.5	56.0	54.3	52.7	51.8	50.3	48.9	50.2	49.3
Agriculture	1.7	1.6	1.5	1.5	1.4	1.3	1.2	1.2	1.2	1.3	1.4	1.2	1.1	1.2	1.4	1.4	1.2	1.4
Commerce & Bus. Admin.	6.1	6.0	5.9	6.0	6.0	5.7	5.8	5.8	6.3	6.1	6.1	7.0	7.8	8.5	8.8	9.1	9.4	10.0
Education	10.8	11.8	12.1	12.2	12.6	12.9	13.0	12.3	12.0	13.5	14.0	13.5	12.9	13.0	13.0	13.6	13.9	13.5
Engineering & App. Sci.	15.0	13.3	12.0	11.3	10.5	10.0	9.9	10.2	10.4	9.5	9.3	9.3	9.0	8.8	9.1	9.3	9.8	10.4
Fine & Applied Arts	.5	.5	.5	.6	.6	.7	.8	.9	1.0	1.7	2.0	2.6	3.2	3.4	3.4	3.5	3.5	3.6
Dentistry	1.0	1.0	1.0	.8	.8	.7	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
Medicine	4.0	3.5	3.3	3.0	2.8	2.5	2.3	2.2	2.2	2.1	2.1	2.2	2.4	2.4	2.7	2.7	2.6	2.6
Nursing	1.6	1.5	1.6	1.9	1.8	1.7	1.7	1.6	1.7	1.6	1.6	1.7	1.7	1.7	1.9	1.9	1.7	1.7
Pharmacy	1.4	1.3	1.2	1.1	1.0	.9	.8	.8	.8	.7	.8	.8	.9	.9	.9	.8	.9	.9
Misc. Health Programs	.6	.6	.7	.7	.6	.6	.6	.6	.7	1.0	.9	1.0	.9	1.0	.8	.9	.8	.8
Household Science	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.1	1.2	1.1	1.1	1.2	1.4	1.5	1.5	1.3	1.2	1.2
Law	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.4	2.5	2.6	2.7	2.9	2.9	2.7	2.7	2.9	3.0
Religion & Theology	3.1	2.8	2.3	2.1	1.9	1.5	1.3	1.5	1.2	1.2	1.0	.8	.8	.7	.7	.7	.6	.6
Veterinary Medicine	.4	.4	.4	.4	.3	.3	.2	.2	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3
Unclassified	.5	.6	.8	.7	.7	.7	.7	.9	.8	.5	.6	.8	1.5	1.3	2.1	2.4	.4	.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.00	100.0	100.0

Source: Historical Compendium of Educational Statistics, Statistics Canada 1978.

of the profession. Although there are signs of a moderate oversupply of certain health specialists in parts of Ontario,[32] this is largely owing to problems of mobility - there is no indication that newly qualified MD's will be forced to take jobs as orderlies or lab technicians. Employment prospects in the self-regulated professions remain relatively good because entry into these professions is strictly limited. The advantage professional graduates enjoy might be considerably reduced if unlimited entry were available to all post-secondary courses that prepare for specific occupations.

Nursing and law graduates in some communities have experienced some difficulty in the job market in the past decade. Usually this has meant delayed entry into appropriate employment, or in the case of nurses, moving to places where jobs are more plentiful. Prospects are very good for most engineering graduates, commerce and business specialists, and computer scientists, and student demand for these programmes is increasing. If a cobweb effect in these occupations is inevitable, there will be a surplus of accountants and systems analysts a few years from now. The Harvey-Murthy projections indicate some over-supply in engineering and accounting from 1982 to 85. This will probably not cause unemployment, since persons trained in these disciplines tend to find work fairly easily in occupations not requiring their specialized skills. The decision to enrol in vocational or professional programmes at the university level will probably ensure a

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[32] See Health Manpower in Ontario (Ontario Ministry of Health, 1978) a summary of the reports of the Postgraduate Manpower Committee of the Council of Ontario Faculties of Medicine chaired by Dr. J.E. Boone.

successful career, as long as the occupation suits the interests and abilities of the individual. However, students should be encouraged to consider their long-term goals, not simply the immediate employment prospects in specific fields, for these can change quite rapidly.

Another option for the individual is post-secondary training at the community college level. Grade 13 graduates and students with university education are now entering community colleges in increasing numbers. In Ontario, some 8% of students enrolling in community colleges have either university degrees or some university education. Another 20% have Grade 13.[33,34] Community college graduates from business and technical courses usually find jobs quite quickly in their areas of specialization, but very little is known about the career paths of these graduates. The Ontario survey discussed earlier showed that two years after graduation, the median salaries of 1974 college diploma recipients were lower than those of university graduates. There is some evidence that community college graduates will not be promoted as readily as university graduates. The broad academic background and

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[33] Ontario College Information System Report ST45, 1979

[34] Norman Williams, Chairman of the Ontario Council of Regents, expressed concern that university calibre students may push out the Grade 12 students for whom the colleges were first set up. Reported in "Colleges 'Surer way to a job'", Toronto Star, 4 September, 1979.

the degree credential of the university graduate may make him, in the eyes of the employer, more suited for a managerial position than the diploma holder, who is regarded as a technician. Although there are no substantial data to support this assumption, it seems likely that in areas where training is available in both community college and university, such as computer science, or commerce, the graduate from the higher level programme would have an advantage in the long term. However, we know very little about the combination of practical community college training and the university calibre mind. Perhaps personal ability and inherent intelligence would lead to rapid advancement.

More information is needed regarding the kinds of students who are eligible for university but decide to enter other institutions. Freeman found that male students from lower-middle class or working class backgrounds were most responsive to changing labour market demand, and were more likely to alter their educational plans.[35] If in Ontario students from less affluent backgrounds are choosing community college over university, are their chances for long-term success diminished? Christopher Jencks reports that non-whites and farm sons derive greater relative benefits from higher education than whites from more advantaged backgrounds.[36] In recent years, according to Freeman, black graduates have enjoyed comparatively greater returns on the college

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[35] Freeman, The Labor Market for College Trained Manpower.

[36] Who Gets Ahead?, pp.174-75.

degree investment than white males.[37] Although the Canadian experience is not strictly comparable, it is possible that students who could benefit most from the degree credential are the ones most likely to forego university in favour of the more immediate advantages of a community college diploma, or other vocational training. This may be an appropriate decision for some students, but those with serious academic interests and abilities should not be deterred from the opportunity to develop them.

It is sometimes assumed that there is a direct relationship between the BA surplus and Canada's chronic shortage of skilled workers, with the latter due to excessive demand for university education:

> Unless we can persuade parents that to be a skilled tradesman is just as important as being a lawyer, we're certainly not going to persuade students to take these courses [apprenticeship programmes].[38]

This argument seems inappropriate however - the kind of student who wants and can successfully pursue professional education at the university level is unlikely to shift to training as a tool-and-die maker. The real reason for a shortage of skilled craftsmen in Canada is a lack of

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[37] Freeman, The Over-Educated American

[38] Dr. Bette Stephenson, quoted in Contact, vol. II, no. 4 (Hamilton: McMaster University, 28 September, 1979), 1.

apprenticeship programmes in industry. Industries in this country have failed to develop these programmes largely because it has been easier to import skilled workers from Europe. The shortage of these workers is not the fault of the universities, and is not a problem that should be solved at the universities' expense. Any new programmes for training skilled craftsmen (or recruitment to existing programmes) should be directed at high school dropouts, or high school graduates lacking the academic skills for university, for their employment problems are much more serious than those of university graduates. A minority of liberal arts graduates may decide that the best way to make themselves marketable is through training as skilled labourers. However, such an unorthodox combination is probably not a realistic solution for either the B.A. surplus or the skilled labour shortage.

A shift to vocational education at all levels is undeniably taking place. Universities will be forced to deal with the consequences of graduate unemployment, whether or not they decide to actively assist bachelor's graduates in entering the labour market. As a result, there will be demands for more faculty in courses such as commerce, statistics, and computer science. In the next decade there may be a serious shortage of trained researchers, particularly in the natural sciences, if graduate enrolments continue to decline because of poor employment prospects. In the face of these serious threats to the integrity of university academic programmes, it will be difficult to direct institutional attention to the plight of the individual graduate.

There are, however, measures that could be taken to improve the situation of both the student and the institution.

One approach would be simply waiting for the youth unemployment problem to solve itself. Because of known demographic factors, the population under 25 will begin to decline in a few years, which should reduce competition for entry-level jobs, including those sought by university graduates. There are already indications of a reduction in the unemployment rate for workers in the 15-24 year-old age bracket.[39] Wayne Gartley, executive director of the Canadian University and College Placement Association, reports that there has been a definite improvement in job availability for post-secondary graduates in the past year, with shortages of skilled graduates in professions such as nursing, engineering, computer science and business.

Although there is little evidence yet that humanities and social science graduates are benefitting from this improved trend, historically and collectively university graduates enjoy a high rate of employment. It can legitimately be argued that any programmes for reducing unemployment should be geared to those who are more severely disadvantaged. The liberal arts graduate should depend on his own resources for entry into a tight labour market, whether by means of an M.B.A. or other professional

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[39]Mark Lukasiewicz, "Jobless rate for youth shows improvement", Globe and Mail, 10 September 1979, B 9.

qualification, or some more unorthodox combination of academic and vocational training.

Although unconventional combinations of work and education might suit many students, writers on the subject offer few realistic suggestions of how that combination might be effected. Left to their own devices many students will probably choose the more conventional routes of enrolling in engineering or commerce, rather than in a liberal arts course without a defined path to employment. If the universities (more specifically, the faculties of arts and science) wish to prevent a large-scale shift to the professional disciplines, they could begin by countering adverse publicity about poor career prospects for their graduates. The old argument of "education for education's sake" still has merit, but it is unrealistic to ignore the fact that many students are motivated by vocational concerns. Students may not listen to arguments about the broadening of personal horizons through an education in the humanities, but they might be interested in some information on the long-term career success of bachelor's graduates. They should be made aware of the fact that it is not a sign of failure to be employed outside one's academic discipline, and they should be encouraged to consider their aspirations for ten or twenty years in the future, not just their employment prospects three or four months after graduation. At the same time, they should be given some concrete suggestions for supplementing their academic education with marketable skills.

Rather than training students for specific occupations, arts and sciences faculties concentrate on developing the general competencies that

the liberal arts have traditionally fostered. Horace D. Beach lists three broad abilities which are important in a variety of circumstances:

> "the ability to observe and discriminate
> the ability to think and analyse
> the ability to communicate".[40]

The Solmon and Bisconti study showed that these general skills were the ones most valued in actual employment. Faculties of arts and science have a responsibility to ensure that their graduates are truly competent in these areas, and should more actively publicize the value of these abilities in non-academic settings.

At the same time, students, faculty and administrators should recognize that to observe, to analyse and to communicate effectively in the late twentieth century requires new tools. Throughout the mediaeval period and later, all educated people studied Latin because it was a practical subject, used in commerce, public administration and diplomacy. Today, it is reasonable that all educated people have some acquaintance with the skills needed in modern commerce and administration. This might be achieved by supplementing a conventional humanities or social science major with a minor in courses providing skills sufficient to secure an entry-level position. This course sequence in "Organizational Skills"[41] would include some preparation in accounting, advanced English composition, computer science, economics, human relations and group dynamics, social

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[40] "Higher Education and Student Employment Needs", The Canadian Journal of Higher Education

[41] Suggested by C. Joseph Pusateri in a series of contributions on the question "Should liberal arts graduates try to make their graduates more 'marketable' so that they can better compete for jobs with vocationally prepared graudates?" Change, vol. 11, no. 6 (September 1979), 52-55.

psychology and statistics. The author of this proposed minor notes that the American College Placement Council has found "significant increases in employment possibilities for liberal arts graduates if even some of these practical skills courses appear on a transcript".[42]

Solmon and Bisconti also suggest curriculum changes to ensure that all students have some of the general work skills found to be of most use in the survey of 1965 graduates. Although some may feel that the liberal arts tradition is compromised by this approach, it may be necessary in order to prevent complete erosion of traditional programmes:

> Many faculty will resist this need to revise courses to make them relevant to the real world. However, if they have no choice, this goal might be achieved. That is, students will be encouraged to acquire training in general work skills (English, writing, mathematics, accounting) regardless of whether they major in French literature or engineering. Basic skills lead to better job prospects regardless of the supply-demand situation for particular jobs and majors. The alternative of preserving the current freshman and sophomore curriculum could lead to plummeting enrolments in certain fields, and the opportunity to teach the traditional courses would vanish.[43]

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[42] Ibid, 53.

[43] College as a Training Ground for Jobs, pp. 164-65.